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ABSTRACT

This manual details a research design for the longitudinal and comparative evaluation of nursing education currently being conducted by the National Second Step Project at Sonoma State University. Chapter 1 describes the purpose, background, and context and substance of the Second Step model. Chapter 2 considers the design of a multicampus evaluation research approach in terms of the survey population and sample, objectives, setting a timetable, and adopting a methodological approach. In chapter 3 the evaluation methodology is detailed with regard to sources of information and data collection tools and techniques (standardized tests, project-designed instruments, and observations and document review). Chapter 4 outlines evaluation procedures as they pertain to data collection, data processing, providing feedback to participants, and communication and decision making. The focus of chapter 5 is analysis with particular attention given to qualitative and quantitative data analysis, data validity and reliability, and data synthesis and interpretation. Chapter 6 concentrates on planning, writing, editing, and disseminating the final evaluation report. (A prospectus is appended.) (YLB)

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EVALUATING NURSING EDUCATION:

A RESEARCH MANUAL

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"Respect the nature of the empirical world, and organize a methodological stance to reflect that respect."

--Herbert Blumer

PREFACE

For perhaps a hundred years now, the status of nursing has advanced in fits and starts from a helping hand to a profession, such advancement having been meteoric within the past two decades. The education of nursing personnel is currently provided in a great variety of settings and institutions, each adapting in its own way to the heightened demands of professionalism as well as to the increasingly complex health care needs of our society. Thus, nursing education is, in our time, experiencing exciting changes in policies, in structures and in concepts.

One such change has been the development of educational structures to facilitate professional mobility among non-baccalaureate registered nurses. These educational ventures comprise the newest and fastest-growing model of nursing education; as such, they now command the attention of professional policy makers, educational administrators and, most recently, program evaluators.

Although the overall problems, principles and rationales of educational evaluation are widely applicable to a variety of disciplines, specific tools and methods are frequently developed as particularly appropriate to certain academic fields. Similarly, although nursing education as a whole shares many commonalities in terms of content and standards of excellence, the evaluation of an RN/baccalaureate program poses challenges peculiar to this timely and innovative model. This volume documents in easy-to-follow detail one comprehensive and successful research design drawn up and implemented to meet that challenge.

The National Second Step Project is a federally funded Special Projects Grant launched in 1978 by a small research group affiliated with the Nursing Department on the Sonoma State University campus in northern California. It was Sonoma's nursing curriculum, a post-licensure upper division baccalaureate degree program for RNs, which gave rise to the term "second step" as a category of programs designed expressly to serve the

educational and professional needs of the student who had already, by virtue of licensure, taken the "first step."

From the start, strong and heated arguments challenged the acceptance of this curricular model. An organized method of program evaluation was essential, and the Sonoma program provided an optimal research site. Over the years from 1972 through 1978, a truly gargantuan amount of longitudinal data was systematically gathered, analyzed, interpreted and incorporated into a series of publications. (Searight, ed., 1976; Wilson et al., 1977; Wilson and Levy, 1978; Dean and Jako, 1978; Jako et al., 1978)

The present authors had all worked together on the final study in that series--an inquiry which explored and evaluated that one particular program in great detail, producing a hefty volume of findings remarkable for their richness and scope but severely limited in generalizability to other similar programs that were springing up around the country. The next logical step, then, was to expand the target of our concern to include other variations on the theme; thus, to deal not with a single program in isolation, but with several programs sharing the distinctive "second step" approach to nursing education. Hence our name: The National Second Step Project.

The project as a whole has several objectives, only one of which is, as stated in our grant proposal, "to conduct a multi-campus comparative evaluation of second step programs on a nation-wide basis." That one, however, is the central pivot--the focus of most of our creative work, and the impetus for the publication of this manual.

What we present, then, is a case study of our research process. The reader we address most directly is already aware of the NSSP and is seeking further information as to its protocol and methods. But the circle widens to include others whose interest is less specific--nursing educators, consumers of evaluation research, and those involved in developing a new educational program, whether as evaluators, teachers or administrators.

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CHAPTER I

INTRODUCTION

A. Purpose

Over the years, the research section of the Nursing Department at Sonoma State University has received numerous inquiries which, taken together, strongly influenced our decision to produce this manual. Some were naive requests for "all your findings"; others included a plea for "help with our own self-study." The present volume contains only the barest sketch of previous findings; on the other hand, it is intended to provide a great deal of help.

Originally, we had thought to distill from our collective experience a general guide to research in nursing education--a "cookbook," if you will. The potential readership for such a guide is clearly present and rapidly increasing. But how to respond to their needs was quite another question.

There is no shortage of printed verbiage on the topic of evaluation research. Literally scores of such books cover the topic in infinite detail. The trouble is that they are usually written for researchers. Following the cookbook analogy, they are guides to gourmet cuisine, and likely to be written in French! The audience we address may include a few who want to know how to melt butter without burning it.

Another difficulty with a general handbook is that, for obvious reasons, it rarely treats the very specific situation or problem that arises in the use of a particular research design. For the assistant professor who, to her amazement, is placed in charge of evaluating a newly designed curriculum, basic principles alone may be of limited utility.

Our purpose, therefore, has been to chart a well-defined course along a very specific route. We present, in essence, a blueprint for the research currently being conducted by the National Second Step Project (NSSP). Here you will find not only ideas about evaluation design, but a clear explication of the design we have implemented; not mere advice on questionnaire construction, but descriptions of completed and available instruments; not vague suggestions as to how you might process data, but an explanation

of actual procedures we follow; not an array of analytic schemes differentially appropriate to various research problems, but an outline of a sound, workable analysis of these data. This is not to imply that it's all nuts and bolts: we also state our assumptions, the theoretical basis for our methodological approach, and the rationales that support action. But our basic intent is to show rather than to tell.

B. Background

The conceptual forerunner of the NSSP was a demonstration study of the second step nursing program at Sonoma State. Since most early decisions regarding design and methodology were made with reference to that experience, the next few pages contain a very brief overview of the setting in which it was carried out, the questions posed, concepts generated and its acknowledged limitations.

Initially unique to Sonoma's two-year baccalaureate program was the requirement that entering students must have earned an Associate of Arts degree or its equivalent and must also hold a current California license as an RN. Assuming that the prior learning represented by those two admission criteria forms the foundation upon which professional education can be built, the faculty designed a process-oriented curriculum which emphasizes community health and stresses a broad knowledge of the health-illness continuum, problem solving, decision making, and progress toward self-actualization.

In addition to regular course work, the first year includes clinical learning experiences in a variety of community settings, encouraging a broader understanding of the many variables which influence health and illness. Self-awareness, group dynamics, and inter-personal relationships in groups and in health organizations are stressed.

The senior preceptorship year offers two options. One is a curricular contract in which the student selects a problem or question to explore in depth, obtains an off-campus preceptor, arranges for necessary facilities, develops a plan of action, works out a contractual agreement with the agency, and provides a plan for evaluation of his or her progress. The second option is a more structured family nurse practitioner preceptorship, conducted in community clinics and physicians'

offices. Qualified FNPs serve as preceptors and faculty.

Conducting an evaluation of this rather complex curriculum was no small task. Heterogeneity of entering student populations mitigated against simplistic pre-post measures of impact; and the fact that the program itself was still developing argued against a static or cross-sectional approach.

From the analysis of longitudinal student data, six central concepts emerged:

1) The Veterans Club. This is basically a status concept arising from an overall view of pre-entry characteristics shared by most Sonoma students. In the eyes of the faculty, of the profession and of the general public, most entering students already looked and acted like nurses.

2) Status Maintaining. Retaining a previously earned status--that of a recognized member of the nursing profession--surfaces as a major source of motivation for these registered nurses at the entry phase of their baccalaureate study.

3) Independence Seeking. Both personality configurations and a host of attitudinal items point to an additional set of ingredients in the make-up of this student group: a need for independence, a resistance to authoritarian thinking, a desire for personal autonomy.

4) Balancing. Typically, students were maintaining a delicate balance among three sets of role identities and demands: a) as students in a non-traditional baccalaureate nursing program, b) as registered nurses, most of whom continued to be employed, and c) as mature "re-entry women" with community and/or family responsibilities, engaged in the process of restructuring their lives.

5) Frontiering. In an attempt to discover the kinds of roles toward which students were predisposed, four nursing orientations were identified: traditional, academic, leadership and frontiering. Although the first three might be expected to typify BSN students generally, the prevalence of the frontiering orientation illuminates the distinctive nature of this student body. It defines a student who shows interest in positions that are non-traditional; questions established health-care delivery; is innovative and flexible in general orientation to nursing.

6) The Independent Professional. This role concept, posited as a synthesis of 3) and 5) above, is not defined by a particular nursing activity, practice setting or clinical specialization. Nor is it necessarily individualistic; close collaboration with others is compatible with the role definition. It does, however, provide the practicing nurse with opportunities for creativity, for innovation in the solution of problems, and for determining (within flexible

boundaries) the suitability of various courses of action based on own professional competence.

Student data were also used to formulate and to measure three separate dimensions of "success": (1) achievement of the diverse goals of the program, (2) academic achievement during the period of enrollment, and (3) a personal, subjective sense of accomplishment. Although the three measures were statistically distinct, a few commonalities were noted: certain shared personality characteristics, a sense of "special expectations" of the program at entry, and positive relationships with at least "some" members of the nursing faculty, based upon professional and/or personal attributes.

From an examination of teaching styles, setting and curriculum, nine central concepts were generated:

1) Communalism. Faculty behavior evidenced a tendency to want to act as a group and, as individuals, to be answerable and available to the group.

2) Interactionism. The goal of interactive openness is formalized as an ethic--it is not seen as merely useful or efficacious, but as good in itself.

3) Feminism. Doctoring may be seen as a male response to illness, whereas nursing is seen as a female way to create and maintain health.

4) Political Change. The faculty seeks and encourages in their students an active legislative, organizing and confrontational role in implementing change.

5) The Ethic of Availability and Warmth/Supportiveness. Interactionism is here extended to students. More than merely descriptive, it emerges as a behavioral norm.

6) The Student Peer. Distinctive characteristics of RN students tend to define program content, and to encourage egalitarian attitudes and flexible teaching styles.

7) Therapeutic, Affirmative and Traditional Styles. The therapeutic style assumes that students, as RNs and as women, must gain knowledge coupled with assertiveness. The affirmative style tends to treat students as fellow professionals. The traditional style makes no assumptions about the personal needs of students. Individual faculty members often embody more than one style, depending upon subject matter and class size.

8) Facilitators and Instructors. Teaching styles were also differentiated according to the teachers' assessment of the autonomy of their learners. "Facilitators" see their students as self-directed and act primarily as resources, sounding boards and sources of encouragement; "instructors" employ more traditional academic techniques.

9) Additive Model of Curriculum. The faculty has a notion of what RN students lack and what they need in order to become professional nurses. Thus, the curriculum was, in a sense, built from the students rather than the other way.

Combining these ideas with other research findings, the Demonstration Study (Jako et al., 1978) put forward a conceptual explanation of the basic social processes occurring in the early years of the Sonoma program: that of "shaping professionals." The analysis concerned itself with what happens to students during the course of their experience in the Sonoma program. These processes, through which a technical identity is supplanted with a professional one, are posited as those which may distinguish this curriculum model from the traditional four-year BSN curriculum.

As a program evaluation, the Demonstration Study represented a significant accomplishment. As an explanatory inquiry focused upon a curricular innovation which now exists in several slightly varying forms, however, it is limited by its total reliance upon data from a single program. Findings pertain to a single (though influential) campus and to a single (though extensive) time period. In the NSSP, insights gleaned from that pioneering effort are carried forward.

C. The Second Step Model: context and substance

While each individual second step program is locally initiated, our previous research suggests that larger social factors have influenced the development of this model of baccalaureate nursing education, promoting its collective growth and conditioning its curricular characteristics. The same social forces that, in a sense, created the programs still continue to define them. They live within the students, the faculties and the educational settings. We cannot understand one without the other.

The national crisis in health care delivery, in terms of cost and quality of services, is well known through a variety of books, articles and in the press. Health professionals, once the prototypical bastion of stability and trust, now find themselves under fire from a dissatisfied and sometimes outraged public. These facts and sentiments give the normal penchant for professional improvement a new urgency, and provide some of the energy behind efforts at change. The new awareness of the public that its health care is not what it might be, or even should be, is only part

of the general re-examining of institutions that has swept this country in the last decade.

Most importantly for the purposes of our research, it is not only health care that is being challenged, but the status and role of women, and the accessibility and practicality of higher education. Nursing education is one point of intersection for all these controversies. Baccalaureate programs for registered nurses address the following larger themes, briefly put into context below: non-traditional students, the public dissatisfaction with health care delivery, the women's movement, and new directions in health care.

The oft-mentioned post-war baby boom beginning in the late Forties produced a flood of college students for the Sixties, and an unprecedented boon in facilities and personnel connected with higher education. The number of traditional college-age students dropped off dramatically in the Seventies, and educational institutions have been forced to seek out students of non-traditional age, background and pursuits. The usual reluctance of colleges to cater to working, older adults has melted away with declining enrollments. Academic credit for these older students' experience and expertise has been arranged and the college opened to them.

It is no accident that nursing has been one of the chief fields to which students, particularly non-traditional ones, are flocking. The public perceives physicians as frequently aloof, impersonal, and expensive. Becoming more and more popular is the concept of the middle level practitioner who can fulfill many of the functions of the old family doctor, a person who can be seen regularly to promote the patient's health in a personalized way, who is not seen only in a crisis, under conditions of medicinal urgency, and for an exorbitant fee. One answer to that is increasing the ranks of professionally prepared nurses. Departments for producing all manner of health professionals have been growing in colleges that may have considered them "unacademic" in the past.

It is not only the required level of preparation that has risen in nursing, but the level of expectation of nurses themselves. This is due in no small measure to the advances of the women's movement. Recent changes in the status and role of nurses have paralleled those in the status and role of women generally. Challenges to the dominance of

physicians in the practice of medicine parallel challenges to the dominance of males in all facets of American life.

Thus we have the institutional conditions met in the opening of the college doors, the professional conditions set for producing more professional nurses, and the psychological conditions for challenge and self-improvement established by the demands of the women's movement.

Some aspects of the nursing curriculum itself are the products of circumstances impinging upon nursing. Advances in the technology of curative medicine, along with proliferation of medical knowledge, have contributed to increased specialization on the part of physicians. This specialization has tended to get the surgeon closer to the technical minutiae of physiological problems, but farther away from the patients who have them. A developing lay and professional solution to this difficulty has taken the shape of various doctrines of "holism." The new professional thrust in nursing stresses caring over curing, prevention over treatment, a "bio-psycho-social" view of health maintenance over a medical model of disease treatment.

In addition to offering a curriculum content reflecting the various aspects of holism described above, second step programs are frequently designed with the non-traditional student in mind. The curricula often include some self-directed, contractual study; course content emphasizing self-actualization and leadership; and evening, summer, and part-time study. The characteristics of these older, experienced students influence the programs as much as the programs influence them.

In order to describe the programs we are studying, we need to consider the impact of certain seemingly external factors in our plan of inquiry. We include within the scope of our research a concern for the social, educational and professional contexts within which such programs develop. And, we adopt a philosophy of inquiry and analysis calculated to generate ideas and concepts concerning the relationship of this curricular model to its history and to the social forces of which it is a part.

CHAPTER II

THE DESIGN: Multi-campus Evaluation Research

In higher education, evaluation research is usually limited to a single campus, or even to a single academic program. Although frequently longitudinal in nature and/or pertaining to more than one student sample, program evaluators rarely need to be directly concerned with design problems entailed in cross-campus comparisons in the early stages of their investigations. At the same time, any program is in reality part of a larger population of "all such programs." In the final interpretive stage of even a single program evaluation, the researcher needs to be aware of the broad outlines of that larger reference group, both for comparative purposes (i.e., being able to say how the program in question is different from or similar to it) and in order to estimate the generalizability of findings.

In general, topics dealt with in this chapter are part and parcel of any research design, regardless of scope: defining the population and the sample, posing objectives, setting a timetable and adopting a methodological approach. Each requires a decision based upon a sound rationale. In a sense, such preliminary determinations are no more important than the smaller decisions that are made as you go along; it is just that you have to make them first--and then live with them.

A. Defining the Population: the program survey

The NSSP research design was outlined in the early part of 1977. At that time, although much had been written about the idea of second step programs, no published empirical studies had successfully defined and enumerated this new phenomenon of American higher education.

From our work on the Demonstration Study, we suspected that second step programs generally were quite different from the other three models usually referred to in the literature--diploma, associate degree and generic programs. But we needed a way to confirm or refute that hunch. We also needed a way to describe the institutional population from which our study sample would be drawn, and to provide an empirical background against which to view their defining characteristics.

To fill those needs, we augmented the comparative evaluation by

adding a preliminary step: the program survey. During this initial phase, the NSSP sought to establish contact with every program of this type throughout the nation, including those not yet accredited. To do that, we needed only two things: a complete mailing list and an appropriate data-collecting tool. Neither was readily available.

Since this particular group of programs had never been constituted into a "second step population," we used a "snowballing" technique (Sudman, 1976, pp. 210-211) for assembling the mailing list. After pulling together a list of 108 institutions that we thought might have such curricula in operation, we wrote into the survey form itself a request that respondents tell us of others that they knew about, thereby eventually increasing our population N by approximately 44%.

General speaking, the less you know, the more you have to ask. This posed a problem: we actually knew very little about the programs on our augmented mailing list. At the same time, since we were addressing the survey to busy Department Heads, we realized that a long, complicated questionnaire would stand little chance of being returned. Our solution to this dilemma was to approach the collection of data in two ways. First, we limited our actual questions to a single page of fairly basic descriptive information: type of program and "parent" institution, how long it had been in operation, accreditation status, and a variety of program statistics. Second, we requested, in addition to the brief survey form, a current catalogue and/or other descriptive publications. Curricular details included in these materials enable us to refine the operational definition of the population we wished to describe--"baccalaureate programs designed expressly for registered nurses"--and to specify criteria for inclusion in or exclusion from the survey population.

Never underestimate the importance of "piloting" a new instrument. No matter how crystal-clear each item seems to you, your respondents will probably find a "wrong" way of interpreting it. We ran the first version of our survey past chairpersons of a few nearby nursing programs, clarified the items with which they had difficulty, and got it ready for mailing.

What with "snowballing" the sample and devising three follow-up mailings, twelve weeks elapsed from our original mailing to the final cut-off date for processing returns. Then, with the population defined

and with estimates of its size and basic chracteristics, we were ready to focus in on the study sample.

B. Defining the Sample: the six-campus study

"Baccalaureate programs designed for registered nurses" should, we reasoned, include two curricular patterns. One is the classic "second step" as represented by the Sonoma curriculum; i.e., programs which deal only with upper-division baccalaureate nursing education, admitting students with Junior standing. The other is the "two plus two" variant; i.e., nursing programs which award both the ADN and the BSN. In this latter type, only the upper-division work constitutes the real focus of our evaluation. But since many students continue from lower to upper division within the same institution, with or without a temporal break in their formal education, these two types of programs are treated separately for certain analyses. Both, however, fall within the operational definition of the population of interest, and will, for most purposes, be referred to in this manual as "second step" programs.

The preceding section conveys the impression that only after the institutional population was defined would a sample of those programs be selected for intensive study. Theoretically, that's the way it should work. But in the real world of grantsmanship, theory sometimes bends to accommodate concrete reality. In order to assure the funding agency that programs so selected would indeed participate in the study, it was necessary to choose the study schools and elicit their written support for the project prior to submitting the proposal.

Two major factors argued against a random selection from among "all second step programs." First, as of early 1977 that population had yet to be defined; thus, a random sample was not feasible. Second and more important, selection criteria should serve to screen out programs which, either because of newness or because of failure to meet professional standards, would contribute little to a definitive portrait of this curricular model. One single criterion provides the simultaneous solution to both problems: NLN accreditation as of early 1977.

Published sources furnished the names and addresses of five second step programs which had received NLN accreditation. During the

time we worked on the proposal, we learned of one more, bringing the total known population to six.[1] It was an awkward number--somewhat large in view of the complexity of the research design we had in mind, yet not large enough to permit representative sampling. We therefore decided to include all six.

Far from constituting a homogeneous sample, these six sites cover an impressive range of institutional characteristics. Half are strictly upper division; the other half are two plus two. Three are decidedly urban; one is suburban; and two are semi-rural. Four are within tax-supported public institutions; the other two are in private institutions, both of which are supported by the Catholic Church. Three of the parent institutions boast a student population of over ten thousand; two are of moderate size (1,000-10,000); and one is quite small. Two are doctorate-granting institutions; two have Master's programs; two are strictly for undergraduates. The total enrollment of RNs in the nursing departments varies from less than 50 to approximately two hundred. Finally, they are spread clear across the country from the Eastern seaboard to the Mexican border.

Without a knowledgeable and involved liaison at each site, the mere task of coordinating data collection and other evaluation activities would be formidable; achieving the kind of insight and understanding we were aiming for would be well-nigh impossible. Thus, one of the earliest steps in the research process was to identify one faculty member from each participating program capable of playing this indispensable role, arrange for compensation or release time, and endow the role with a suitable title --that of Evaluation Associate.

C. Posing the Objectives: the art of compromise

This section summarizes the thinking of the NSSP staff in posing research objectives that would be both productive and realistic. The goals we set reflect a compromise between the authors' own philosophies of research, pragmatic constraints such as the availability of resources and expertise, and our personal perspectives on current issues impinging on nursing education.

Readers who plan to use this manual as an actual research guide,

whether to replicate the present study or to adapt parts of it to their own purposes, may not share our philosophical bent; similarly, they may operate under differing budgetary restrictions or wish to address different audiences. Regardless of the specific circumstances, however, setting overall objectives is an important step. By setting forth the variety of considerations that influence our own aims, we provide both the rationale that underlies the NSSP research and a concrete illustration of the process by which such goals are formulated.

1. Philosophical foundations

Chapter I discussed social forces which have given rise to second step programs (see pages 5-7). Two characteristics related to those origins have conditioned our approach to this study. First, the programs are innovative, the recent products of changed and changing social realities. Second, they are locally initiated and diverse responses to these realities, rather than being administratively defined creations of a state or federal agency. These two features, in addition to the paucity of information about second step programs, led us to favor research objectives aimed primarily at developing a descriptive and interpretive model of the programs selected for intensive study.

Because we consider such programs, as a group, to be still-developing innovations in nursing education, we depart in some ways from a standard approach to program evaluation. Evaluation research usually tries to measure goal achievement. Among second step programs, however, definitions of success are themselves in transition. To describe the model in its newness is, in a sense, to describe its criteria for success. Definitions of success in expanded-role nursing are, therefore, seen as part of the investigation, not as a predetermined standard of measurement.

The second reason for broadening our objectives beyond those characteristic of evaluation studies is that we are not dealing with "a program" at all, but with a movement made up of separate programs--all locally initiated responses to societal needs which are national in scope.[2] We are dealing with a phenomenon. Each program sees itself as in tune with national trends, and each conforms in its own way to NLN accreditation standards. What we are evaluating is, in a way, the efficacy of a social movement.

We began with ideas we had developed about what might be called a "second step package" in which all the components--the students, the curricular objectives and the faculty--are new, and in which each part influences the others.[3] Questions we pose should reflect this dynamic interaction. But rather than merely confirming or denying that formulation, the questions should imply an integrated analysis which further explains it.

Our objectives, then, are aimed at constructing an analytical description--a model--of such programs, as a way of finding out just what constitutes the programs. What do they intend? What are their students and faculty like? How do they address the new trends in professional nursing? Are they contributing to the development of new standards and perspectives for nursing practice?

A philosophy of inquiry is not an afterthought; it determines the type of questions you think are worth answering and the type of study you conduct in order to address them. Our research objectives stress explanation over proof, and understanding over prediction.

2. Pragmatic constraints

The overall perspective or philosophy upon which the NSSP research design is based sets the tone for the inquiry. But before the objectives are put into final form, other factors must be taken into account, three of which are discussed in this section.

One of the first things to think about is who you intend to address. In addition to our funding agency, we have three significant audiences in mind in drawing up our research questions: 1) the participating programs themselves, 2) the nursing profession generally, and 3) researchers in the health fields, fanning out to include educational researchers and other social scientists.

The first audience, we assume, is most interested in knowing "How are we doing?" They want findings to provide a good, objective view of their operations and of their students, particularly in terms of academic and professional achievement. The second group is more interested in a solid, empirical delineating of this new model of professional nursing preparation. What makes it work and what does it produce? Do we really need it? The third audience may approach our reports with a more critical

eye. They critique the soundness of the methodology, the adequacy of the analysis and the fruitfulness (for the purposes of further research) of the findings. Our statement of research objectives must satisfy all three potential sets of readers.

A second guiding principle is to set goals that are reasonable and attainable within the constraints imposed by your projected timetable, data-processing facilities, and budget. Attending well to these constraints carries a large pay-off in terms of how well you can ultimately accomplish the research aims.

Data-processing facilities were a known quantity. We had inherited from our previous study a good working relationship with the campus computer center, and knew its capabilities and limitations. Time and money were less well defined; the best source of information is always identical with the expected source of funding. In the case of the NSSP, we based our planning on federal guidelines issued by the Department of Health, Education and Welfare (HEW); had we intended to apply for funding from other agencies, objectives would have been adapted to their requirements.

The HEW guidelines are reasonably permissive: they allow us to plan a three-year study, and to use a relatively large proportion of our total funding for travel (permitting site visits to each participating campus) and for salaries (assuring us of competent, qualified personnel). Combining quantitative and qualitative techniques is generally an expensive proposition, especially if the target of the analysis is as diffuse as the one we envisioned--six diverse nursing programs. Both the timetable and the budget, however, seemed to allow us to set some rather ambitious objectives, and to hire senior research personnel and consultants at the doctoral level of preparation.

The third major restraint is quite substantive: although we were proposing to do an <u>evaluation</u> of a curricular model based on six programs, we had no knowledge of precisely what each program's own curricular objectives were. To be sure, we acquire this bit of missing information early on in our investigation, but we are nonetheless constrained from devising "measures of success" pertaining to specific program goals. Our solution is to turn this "limitation" to our advantage. In line with the

philosphy of inquiry discussed in the previous section, we seek to consider measures of achievement which are generally applicable to second step curricular objectives as derived from the literature as well as from our own ideas about such programs. In a sense, then, the research questions which we pose contain within them our tacit hypotheses about what it is that the second step model sets out to accomplish.

3. Current issues

Having been involved in second step research already for some years, we were well aware of the controversial nature of this curricular model, and alert to the necessity for including in our research objectives a means for addressing the central issues and providing relevant data.

The basic questions that we hear the nursing profession asking are: "Can an upper-division professional major in nursing be built on lower-division pre-licensure preparation? What distinguishes technical from professional nursing education? What is the role of liberal studies in the preparation of a professional nurse? Are hospital diploma programs obsolete, or should they be? What are the pros and cons of experiential learning? What, if anything, does this innovative model contribute to the profession, or to its current educational system?"

Such questions, appearing persistently in the professional journals, cannot be ignored. Although we don't presume to "answer" them once and for all, we do plan to gather, analyze and interpret relevant information which will generate useful insights and bring light into some of the darker corners of heated rhetoric and personal bias.

4. Research objectives of the NSSP

We have briefly outlined our philosophy of inquiry, the practical constraints under which we operate, and the need for empirical data relevant to the current issues surrounding the second-step curricular model. Taking all of those things into consideration, we emerged at the end of the process with three basic research objectives:

1) To define, analyze and describe these programs with respect to:

   (a) Characteristics of students. Here we consider:

   . Types of educational and pre-licensure preparation
   . Personal goals and professional commitment
   . Demographic, attitudinal and personality attributes
   . Measures of academic potential and achievement
   . Measures of nursing knowledge/competence and professional achievement

   (b) Educational pattern and milieu. Here we consider:

   . Administrative policies, including admission criteria
   . Manifestations of program objectives, explicit and implicit
   . Patterns of interaction among faculty, students, administrators and health professionals
   . Teaching styles and curricular designs
   . Regional, historical and institutional contexts

   (c) Types or processes of academic and professional achievement. Here we consider:

   . Program objectives (how expressed; how widely accepted; changes or adaptations; etc.)
   . Faculty and administrative structure (formation, transition, stability, etc.)
   . Student success (persistence, grades, self-perception, intellectual growth, goal orientation, professional advancement, etc.)
   . Second step constributions to the nursing profession (new perspectives/role definitions; utilization of talent; leadership; etc.)

2) To explore ways in which these various elements are interrelated, and the meanings of such relationships; thus, to characterize both the components and the outcomes of the second step model.

3) To formulate a descriptive and analytic model of second step nursing education both for comparisons among participating programs and for future comparison with other baccalaureate models.

D. Setting the Timetable: pacing and checkpoints

The NSSP as a whole has several objectives, only one of which is the multi-campus evaluation study. Thus, in budgeting the time, energy and talents of our seven-person (5.5 FTE) central staff, we must plan for the accomplishment of three other aims in addition to carrying out the evaluation: 1) a "faculty development program" to upgrade the research skills of our six Evaluation Associates; 2) continual provision of reports and findings to participating campuses for their use in decision-making; and 3) the design and funding of another research proposal comparing the

second step with the generic model of baccalaureate nursing education.

In curricular evaluation, pacing is the key to survival. The very nature of an educational program insures that you will never know "everything" about its students, its faculty or its curriculum simply because all three are like shifting sands under your feet; by the time you release the final report, you can be quite sure that it will be "dated." By taking account of historical and developmental factors--trends and changes over time--you can minimize their deleterious effect upon your conclusions. But you can never eliminate it entirely. Pacing, then, means:

1) Deciding what the study is going to actually produce in the way of reports, conferences, presentations, publications, etc.;
2) Writing those big events onto a long-range (three-year, in the case of the NSSP) calendar with at least an approximate date for each;
3) Identifying those things you really need to know or to do before producing each main event, and what amount of instrument construction, data collection, analysis and writing will necessarily precede it;
4) Reviewing and adjusting the calendar (products and deadlines) such that it reflects a reasonable work-load for the available personnel (and budget).

The NSSP's adjusted calendar looks something like this:

Month	Year 1	Year 2	Year 3
July August Sept.	Workshop for Evaluation Associates; instruments ready for distribution;		Descriptive report: Graduation data
Oct. Nov.	Program Survey Report		
Dec.	Manual to printer	Descriptive report: Entry data	
Jan. Feb. March	Reports to all six campuses; Report to funding agency	National Invitational Conference; Report to funding agency	National Invitational Conference
	SITE VISITS	SITE VISITS	SITE VISITS
April May June		Publish conference proceedings	Publish conference proceedings; Final Report

Those are the large check points. The catch is that it is a continuous process--i.e., you also have to pace and calendar the steps that lead up to each one, which is essentially the methodology of the study.

The basic principle from all this is simply to keep your intermediate goals firmly in place, and when push comes to shove (as it surely will), to sacrifice quantity for quality. Don't get lost in the maze of collecting data you won't have time to analyze, or in endless analyses that you won't have time to interpret. Be reasonable.

E. Adopting a Methodological Approach: striving for elegance

The research objectives outlined on page 16 dictate certain demands upon the methodology: 1) the study must be at least semi-longitudinal in order to address questions of change and development; 2) it must combine quantitative and qualitative strategies; 3) outcomes must include theoretical constructs for model-building as well as measurements of goals and achievements; and 4) areas of conceptual interest cover a broad range, from specific student characteristics through to descriptive constellations of program characteristics and their inter-relationships.

Technically, we are conducting a comparative evaluation of six specific second step programs. That means our approach needs to be able to assess the impact of each program upon its students, and that such measures must be comparable across programs. Since the "impact" of an educational venture is usually measured by comparing graduate and/or post-graduate data with those collected at time of entry, and since we recognize the serious limitations of cross-sectional comparisons which preclude measures of individual change, we need at least one longitudinal student sample on each campus. And since we assess not only "academic" but "profesional" competence, our data should pertain to a relatively elongated time span--from pre-entry background through to post-graduate placement and attitudes. Hence the longitudinal approach.

In actuality, however, we propose to do more than a simple evaluation study: we also seek to characterize the components and the outcomes of second step nursing education, and to formulate a descriptive and analytic model of this general curricular form. In methodological terms, this implies that data collection, data processing and first-level statistical and qualitative analysis should be compressed, taking place insofar as possible within the first two years, and leaving the third year relatively open for achieving our "beyond the evaluation" aims.

Referring back to the research objectives (page 16), we built the methodology around the types of data and analyses that each seems to require:

1) To define, analyze and describe the following:

   (a) Student characteristics

   Primary need is for quantitative (i.e., objective, pre-coded, standardized) data on students, sufficient to characterize each student population.

   (b) Educational patterns

   Primary need is for qualitative (i.e., observational, interactional, historical, interpretive) data on the social processes and educational climates that typify the programs.

   (c) Types or processes of achievement

   Requires analytic strategies (i.e., indexing, factoring, global coding, etc.) to define program objectives, administrative structure, student "success," professional roles, etc.

2) To characterize both components and outcomes

   Requires exploratory methods using both statistical manipulation of variables and grounded theory, to identify interrelationships among key variables and among sets of variables.

3) To formulate a descriptive and analytic model

   Requires descriptive and theoretical model-building: time for discerning and conceptualizing the basic elements of second step nursing education as evidenced in our data.

An elegant design is one which provides all the appropriate information with the least expenditure of time and effort. It avoids over-collection of data, but insures that data will be available on everything you expect to need for analysis in time for optimal usefulness; allows time and flexibility in the schedule for dealing with the unexpected; and provides both time and motivation for making the best possible use of the information at hand--i.e., building on previous research, interpreting findings in more than a mechanistic fashion, and producing prose that is of more than passing interest to the significant audiences you plan to address. In the language of the market place, it's getting the best return on your investment.

Notes

1. It might be noted that between the time we submitted the proposal and the time it was funded, several more second step programs were accredited. So in reality, our sample represents six of the first such programs to receive NLN accreditation.

2. To see what we mean, compare the second step phenomenon with a federal job training program such as the Comprehensive Employment Training Act. Based on a model from Washington, local CETA programs have been established as a national response to a national problem of unemployment. Each one is supposed to work like the other, and goals are easily quantifiable: more jobs, better wages, etc. The national problem is addressed locally, but the goals and the structure for meeting them are defined "at the top." In the case of second step programs, however, national needs are addressed from the bottom up, as it were.

3. In speaking of a "second step package," we are incorporating the following ideas. A non-traditional student population (mostly female, mature, experienced, and employed) is responding to new roles for nurses, and attending schools which in the past might not have made room for them. The programs are molded not only by the new professional nursing content they must teach, but by the new needs and abilities of these mature students. And, not just any faculty can make the transition to this new and expanded professionalism, abandoning familiar didactic techniques for more flexible, collegial ones appropriate to, say, a forty-year-old mother of three who has been a staff nurse for 15 years. These new programs, we reasoned, are designed to address a new kind of student, who seeks and must be taught new roles, by a new kind of faculty. Each part of the "package" makes the others what they are, and none exists in isolation.

CHAPTER III

METHODOLOGY: A Plan to Get From Here to There

The conduct of research, regardless of whether it is a comprehensive program evaluation or a narrowly focused experimental design, is basically a process of making timely and informed decisions and then "following through." The better the decision-making process, the smoother the road will run; the better the quality of the decisions made, the more fruitful the results of the inquiry.

In specifying a methodology, we take each of the "types" of variables and analyses required by the design and move on to the next level of decision-making. Exactly what do we need to know about students, faculty, environment, course structure, and administrative policy?

In this chapter, we treat not the decision-making process but the results of that process: the sources of information and why each has been chosen; the data gathering tools and techniques we employ and the functions they serve; and finally, a few words about the timetable for accomplishing intermediate goals, and about staffing the overall research effort.

A. Sources of Information

Our methodology specifies six basic sources of information: 1) students (which also includes graduates), 2) graduates' immediate supervisors in employment settings, 3) our Evaluation Associate, who has access to departmental records on each campus, 4) other nursing faculty members and possibly some non-nursing faculty who may teach "required" courses from other disciplines, 5) program administrators, and 6) the NSSP staff. What remains, then, is to identify what information we obtain from each source, at what point in the calendar such data can be most efficiently collected, and by what means. "What" and "when" will be discussed in this section. "By what means"--i.e., a discussion of specific data-collection instruments and techniques--is reserved for the following section.

1. Data from students

Clearly, most information from students is of the "self-report"

variety--i.e., their responses to questionnaires and surveys. Such instruments are constructed not only to elicit relevant facts about their backgrounds, but also to provide the major source of attitudinal data and a view of each program as a whole from the student perspective. In order to support, validate and supplement those self-reports, however, we also collect "objective" measures of the student population: measures of general intelligence, of specific nursing knowledge and competence, and of personality dimensions. Four waves of student data are scheduled: at entrance, in school, at graduation, and post graduation.

Next question: which students? With a total data-collecting period of less than two and a half years (leaving the last six months to work with a completed data base), it is obvious that only one entering class can furnish true longitudinal data, from entry through to post-graduate placement: students entering the program with Junior standing at the beginning of the Fall term, Year 1. But thinking ahead to the serious problems of sample attrition in longitudinal studies, we supplement various segments of their responses with data collected from other classes at parallel points in the program.

Entry-level data, for instance, are strengthened by adding to our respondents those Juniors who matriculate in the Fall of Year 2, although we do not "follow" them through to graduation. Graduation and "in school" data, on the other hand, are similarly strengthened by surveying those students who entered each program one year previous to the initiation of the study, and who theoretically graduate at the end of Year 1.

Post graduate data-collection is traditionally the weakest link in longitudinal studies of student groups. Potential survey respondents are scattered geographically, no longer accessible through normal campus communications channels, and no longer psychologically attuned to the needs of faculty and/or departmental personnel. At the same time, and especially for the NSSP which seeks to assess "professional" as well as "academic" achievement, it is a crucially important phase for purposes of assessing program impact. Therefore, we add not one, but <u>three</u> cohorts of graduates to the target sample for post-graduate data: those who graduate at the end of Year 1 (and who are referred to in the previous paragraph) plus students from the two preceding classes who are already "in the field" as our study begins.

The rather complicated data-collection schedule which results from adding all these supplementary samples is presented below in graphic form, where entering classes are numbered chronologically and where:

O_1 is the entry battery

O_2 is the "in school" battery

O_3 is the graduation battery

O_4 is the post-graduation battery

	Year 1		Year 2		Year 3
Class 1	O_4				
Class 2	O_4				
Class 3		O_3	O_4		
Class 4*	O_1	O_2		O_3	O_4
Class 5			O_1	O_2	

*Class 4 is the basic longitudinal sample; all others are supplementary.

2. Data from supervisors

Most of these data are "about" program graduates, but they reflect the perceptions of a small non-random sample of supervisory personnel within the nursing profession. A brief questionnaire is mailed to the immediate supervisor of each graduate who provides us with a name and permission to contact that person. The data-collection schedule, then, coincides with the post-graduation battery (O_4) as outlined above.

Since these supervisors constitute an extremely heterogeneous population, we also ask them to tell us a little bit about themselves, such as their own educational backgrounds, how long they have known the graduate, etc. Thus, their judgments of the graduates' personal qualities and professional competencies can be interpreted in the light of those few

self-descriptive items.

3. Data from Evaluation Associates

As mentioned on page 21, the Evaluation Associate on each campus represents our direct access to the non-confidential information contained in departmental records. Their largest and most important contributions to the data base are to define (and then keep track of) the various samples, faculty as well as students, and to distribute and collect the various data-gathering instruments throughout the study.

The student samples that they provide are not merely lists of names. They contain also a broad spectrum of background and demographic variables that are accessible from application forms, transcripts, etc., insuring us of at least some data on all students which is not of the self-report variety. Most of this information is originally compiled during Year 1, with Class 5 being added at the beginning of Year 2.

In addition, the Evaluation Associates furnish all "academic progress and outcome" variables by continually monitoring and recording grade-point averages and changes in enrollment status. Who is still enrolled? Who has a leave of absence? Who will graduate at the end of this term?

4. Data from faculty

Although faculty samples furnish a limited amount of quantitative data (e.g., personality and environment inventories as well as responses to a few pre-coded questionnaire items), their contribution consists primarily of qualitative data--open-end questionnaire items and interviews. From their words, we will abstract a picture of each program from the perspective of the teacher/counselor. Faculty respondents also help us to define student success by selecting from each list of graduating seniors those that they consider to be the most outstanding nurses.

Most faculty data are collected during Year 1, some in the Fall and some in the Spring. Nominations of outstanding graduates from Class 4 are, of course, made in the Spring of Year 2, after the Evaluation Associate has compiled the list of prospective graduates from that student sample.

5. Data from program administrators

In a sense, this is a sub-sample of the faculty, since few second step programs boast a full-time non-teaching administrator. In addition to other information requested from faculty, however, this small group furnishes additional interview data pertaining to leadership styles and behaviors. These interviews are conducted in the Spring of Year 1.

6. Data from the NSSP staff

Two members of the research staff make the rounds of all six programs in the Spring term of each academic year. During these site visits, they conduct interviews (which is actually collecting data from other people), but they also directly observe and experience the educational environment that each program creates and inhabits. Using an almost anthropological approach, they provide raw data in the form of written observations and field notes as well as "artifacts"--documents, student reports, newspaper clippings, syllabi, speeches, and whatever strikes them as useful in helping to define the essence of that setting.

In designating these six sources of information and what we particularly seek from each, our intent has been to include the "necessary" and to exclude the merely "interesting." Admittedly, we found quite a lot to be necessary, given the scope of our research objectives. But in selecting and constructing the data-collection instruments described in the next section, we strive to gather from each source only that information which that particular source is most uniquely and most efficiently able to supply.

B. Data-Gathering Tools and Techniques

This step represents the process of operationalizing all variables of interest; that is, of moving from, for instance, "facts about their backgrounds" to "which specific facts," or from "professional and academic achievement" to those specific variables that can define such achievements. Seventeen instruments and/or techniques comprise the means by which all information is gathered from the six sources outlined in the preceding section: four types of standardized tests, twelve project-designed instruments, and the limited use of observational techniques.

1. Standardized tests

Four objective measures are central to our research needs: personality dimensions, nursing knowledge, overall intelligence and perceptions of the academic environment. Standardized instruments selected to answer those needs are described below; references will enable the reader to obtain copies and further information concerning their use.

a. Omnibus Personality Inventory (OPI)

Designed specifically for use in colleges and universities, this inventory assesses values, attitudes and interests relevant to normal functioning and intellectual activity in such settings. (Heist and Yonge, 1968) Fourteen scales represent personality dimensions important in understanding and differentiating among students in an educational context. The profile produced by the OPI can be used to assess intellectuality, social and emotional maturity, flexibility, impulsivity, and other related characteristics.

Our use of this instrument stems from two lines of reasoning. First, there is little doubt that personality characteristics have played a fruitful role in nursing education research in recent years, both descriptive and predictive. Summing up a major review of the 1965-75 literature pertaining to the prediction of successful nursing practice, one investigator concluded that "the 'flavor' of the findings suggest that better nurse performance seemed to be associated with what might be called a mature personality structure ... ." (Schwirian, 1976, page 12) Second, in our previous study of a single second step program, the OPI figured prominently in the delineation of dimensions of success as well as in the insightful descriptions of both students and faculty. (Jako et al., 1978)

Since pre-post scale scores are very appropriate for the measurement of change, this test is administered to our longitudinal student sample at entry and again at graduation. Faculty members also complete the OPI. Our use of this instrument, then, yields sets of individual personality profiles which can be statistically combined to obtain aggregate or "mean profiles" for each participating program (separate profiles for faculty and for student groups) as well as permitting statistical comparisons among various sub-sets of respondents.

b. National League for Nursing (NLN) Achievement Tests

The National League for Nursing (10 Columbus Circle, New York, NY 10019) makes available a broad range of achievement tests, many of which are more or less relevant for assessing students' competence in various areas of nursing knowledge. But the enthusiasm of most student samples for completing such tests for research purposes is, to say the least, severely limited. Accordingly, we selected only two of these tests to provide standardized measures of achievement in the field of nursing: Community Health and Applied Natural Sciences. The former is an area of major emphasis in many second step programs, and the latter disciplines are of obvious relevance to all nursing programs, especially those with a physical assessment emphasis.

The two tests are administered to our longitudinal student sample both at entry and at graduation, providing pre and post data for the measurement of change. As with the OPI, scoring distributions can be averaged to characterize each program in terms of these competencies.

c. The Cattell Culture Fair Intelligence (CFI) Test

Two primary considerations influenced our choice of this instrument (Scale 3, Form A), which is administered to student samples only at entry. First, it is brief, requiring a half-hour or less of timed administration. Second, it measures basic intelligence in a manner designed to reduce as much as possible the effects of verbal fluency, cultural background and educational level. (IPAT, 1973)

Certain problems, however, are associated with using the CFI on samples of students who are older than the traditional college-going population--i.e., those who are past their mid-twenties. This is particularly relevant for NSSP use, since the average age of students in second step programs is about thirty. In order to correct for this, authors of the instrument suggest a simple linear age-correction procedure. However, further research based on more recent and comprehensive results from the CFI (Barton, 1973) suggests a refinement of the age correction which has been adapted for use in the interpretation of NSSP results.[1]

d. Nursing School Environment Inventory (NSEI)

This test, administered to both faculty and student samples, provides perceptions of the general environment of each program. (Johnson, 1970) Consisting of sixty-nine items, it yields six scale scores, the original intent of which were to distinguish the environmental differences among AD, diploma and generic baccalaureate schools. Normative data are available for these more traditional types of nursing programs. (Lysaught, 1971, pages 313-318) Thus, as with the NLN achievement tests, findings can be used not only descriptively and for comparisons among the participating programs themselves, but also to view the perceived environments of second step programs in comparison with those of other nursing programs with more traditional curricula. This tool is self-administered during the Fall term, Year 1, to faculty and during the Spring term, Years 1 and 2, to students completing their first year in the program. It helps to define a school profile for each campus, and to determine how environmental scales may characterize second step programs and/or distinguish them from other nursing education models.

2. Project-designed instruments

As mentioned on page 25, twelve instruments were designed specifically for use in the NSSP. Nine were constructed to gather additional information from or about students; they are described in roughly chronological order, beginning with the data sheets compiled by each Evaluation Associate and concluding with the post-graduation battery. Three shorter and less-structured tools were designed to provide additional information about the programs from the perspectives of faculty and administrators.

Each instrument has its own purpose and rationale, and these are discussed one by one. Since it is unlikely that the NSSP research can or should be replicated in its entirety, our debate as to whether or not to reprint the tools themselves for inclusion in this manual was decided in the negative. However, copies of specific instruments will be furnished promptly upon request.[2]

a. Evaluation Associates Data Sheets (EADS): Form A and Form B

These two forms furnish what are essentially glorified student sample lists as compiled by the Evaluation Associate on each campus. They contain certain basic demographic and educational background information on every student in the sample obtained by drawing upon transcripts and other departmental records.

The first, Form A, lists by "class" (date of entry) each student who matriculates into the upper division, omitting only those who withdraw prior to the end of their first grading period. A long (11" x 15") form, it provides one line of data for each name, including:

1) General information
   - current address
   - date of birth
   - sex and race
   - class level at entry (usually Junior)

2) Preparation for RN state boards
   - name, location and type of institution attended
   - month/year first enrolled
   - month/year completed

3) Whether or not student attended any <u>other</u> postsecondary institution(s) prior to enrolling in second step program (yes or no)

4) Academic statistics
   - at time of entry
     - units previously earned
     - units successfully transferred (applicable toward BSN)
     - GPA at entry
   - at end of first term
     - units taken
     - first-term GPA
   - at end of data-collection period
     - date of withdrawal or graduation, if applicable
     - cumulative GPA

The second, Form B, lists only those students who attended one or more post-secondary institutions <u>in addition to</u> the one listed on Form A (i.e., source of basic nursing preparation). It provides more details on the educational histories of these students.

In practice, the EADS are difficult and time consuming to complete. Transcripts are notoriously difficult to review and interpret, and are often simply not available. Even when academic records are

meticulously maintained, the great variety of systems by which educational institutions record their students' progress (e.g., definitions of credits, units, grades, etc.) make accuracy and inter-program consistency almost impossible goals.[3] Nonetheless, the EADS provide the basis for clearly delineating and minimally characterizing all student samples.

b. Entry Questionnaire

This twelve-page instrument contains 61 separate items; it is the basic source of all self-report data from incoming students. Some items request simple factual information--educational and family background, living arrangements, a comprehensive review of previous work experience, etc. The vast majority of the questions, however, are designed to tap the attitudes with which students enter second step programs. Reflecting again the breadth of the NSSP research objectives, these items range over a great variety of topics, some of which can be illustrated by a few excerpts from the questionnaire.

Attitudes toward education in general and nursing education in particular are of obvious interest. Some items along these lines include:

- How do you feel about competing with other students for grades and recognition?

  ____ 1. I very much dislike it and prefer to avoid it
  ____ 2. I dislike it somewhat
  ____ 3. I have neutral feelings about this
  ____ 4. I like it somewhat
  ____ 5. I like it very much

- Have you decided upon a field of specialization within nursing?

  ____ 1. No
  ____ 2. Yes (What is it? _____)

  a. How definite is this decision?

  ____ 1. Somewhat tentative
  ____ 2. Fairly definite
  ____ 3. Very definite

- When did you decide to get a baccalaureate in nursing, and what were your circumstances at that time?

  _____

  a. For what reason(s) did you decide to get a baccalaureate in nursing?

  _____

  _____

- For what reasons did you choose this particular nursing program? _____

  _____

- Do you have any special expectations of the nursing program in which you are enrolled?

  ____ 1. No
  ____ 2. Yes (What are they?) _____

Many items pertain to the respondent's participation in and perception of nursing as a profession, such as:

- How much interest do you presently have in the following areas or activities of nursing? (Please respond to the following categories.)

	Little or No Interest		Some Interest		Much Interest
	1	2	3	4	5
Belonging to a state or national nurses' organization such as the American Nurses' Association or a state affiliate	____	____	____	____	____
Reading Nursing Research or other nursing journals	____	____	____	____	____
Attending meetings or workshops related to nursing or to the health care professions	____	____	____	____	____
Doing research connected with nursing or health care	____	____	____	____	____
Writing articles related to nursing or health care	____	____	____	____	____
Acting as a resource person to newly licensed nurses or to other nurses	____	____	____	____	____
Acting as a leader or coordinator in matters connected with nursing or the health field	____	____	____	____	____
Union activities related to nursing	____	____	____	____	____

- Do you currently belong to any professional nursing organizations?

  ____ 1. No
  ____ 2. Yes Which ones? _____

- Have you ever held any offices or served on committees in a professional nursing organization? (Check all that apply.)

  ____ No, neither
  ____ Yes, have served on committees _____
  ____ Yes, have held office _____

- How much of a personal stake do you feel that you have in your identity as a professional nurse?

  ____ 1. Not much; I work as a nurse when I'm employed to do so, but I have no particular feelings about being a member of the nursing profession.
  ____ 2. Only moderate; I think of myself as a nurse when I'm on the job, but it's not an identity I carry with me into other aspects of my life.
  ____ 3. Undecided; I go back and forth between "2" and "4".
  ____ 4. Considerable; a nursing career is important to me at present, although I may decide later to move away from this field.
  ____ 5. Very great; I like to think of myself as a member of the nursing profession; and maintaining that identity is very important to me.

A handful of items have some relationship to respondent's attitudes toward sex roles, such as marriage plans, etc. Two of the more explicit items are the following:

- Traditional roles for men and women in our society (i.e., men as providers and women as wives and mothers) have received a great deal of criticism in recent years, and the "women's movement" has been widely publicized. From the statements below, choose the <u>one</u> which best reflects your position, or add your own.

  _____ 1. There are many good reasons for the socially defined roles of men and women--physical and emotional as well as historical. For both sexes, traditional roles provide a measure of fulfillment, security and satisfaction; they should be maintained.

  _____ 2. I have no strong feelings about the way men and women are differently defined and treated in our society; an individual is free to create his or her own "role" without any major social change.

  _____ 3. Undecided or no opinion.

  _____ 4. Women are economically disadvantaged in our society. They should receive equal pay for equal work, and child-care when needed. Economic discrimination is my major concern.

  _____ 5. I am very concerned about many aspects of the differential roles of men and women. Male chauvinism is damaging to both sexes; it should be understood and eliminated from society.

  _____ 6. Other? (Please specify.) _____

  _____

- Do you think the women's movement has had any effect on your decisions regarding your nursing career?

  _____ 1. No, I am unaware of any effects on me
  _____ 2. Perhaps, but I think its influence was quite small
  _____ 3. I have no idea
  _____ 4. Probably, the women's movement did have some influence on my decisions
  _____ 5. Yes, my decisions regarding my career were definitely influenced by the women's movement

As befits an evaluation, we also included several questions aimed at learning the respondent's own self-perception of abilities and competence. For instance:

- Below are several intellectual skills which may be important in any field of study. Regardless of the number of courses you have had, please indicate how much competence you already have achieved in the nursing field.

	Little		Some		Much
	1--------	2 -------	3 -------	4 --------	5
Knowledge of facts and specific information	_____	_____	_____	_____	_____
Knowledge of general principles or theories	_____	_____	_____	_____	_____
Ability to analyze and evaluate books and articles	_____	_____	_____	_____	_____
Ability to apply knowledge in specific situations outside the classroom	_____	_____	_____	_____	_____
Understanding the methods used in nursing	_____	_____	_____	_____	_____
Ability to communicate knowledge to other persons	_____	_____	_____	_____	_____

- How would you evaluate your competence to serve in each of these roles often encountered in the health fields?

	Not Qualified		Somewhat Qualified		Highly Proficient
	1	2	3	4	5
Team member	____	____	____	____	____
Team leader	____	____	____	____	____
Consultant	____	____	____	____	____
Individual practitioner	____	____	____	____	____
Teacher	____	____	____	____	____
Administrator/Planner	____	____	____	____	____
Researcher	____	____	____	____	____

Finally, we wanted some idea of the future perspectives with which students enter these baccalaureate programs. Although several items approach this more subtly, the two concluding questions are perhaps the most illustrative:

- Describe briefly the position you would like to have after graduation. (E.g., "head nurse on the pediatrics ward in a large metropolitan hospital.")

- What are your long-range plans for a position in nursing?

With a questionnaire of this length, there is some danger of alienating (or simply exhausting) the respondent, and we were not unaware of that risk. However, by making the questions themselves both interesting in content and simple in response format, we offset the disadvantage of length and obtain relatively complete and useful data from those who respond.

c. Second Year Questionnaire

If you remove all attitudinal items from the Entry Questionnaire, what you have left is a brief two-page form that contains only 18 separate questions. The title, Second Year Questionnaire, indicates that it is administered only to Class 3--students who are already beginning their "second year" at the time of our first wave of data collection.

The real function of Class 3 is to supplement our graduation and post-graduation data--thus they will complete the entire battery of instruments at those times. But since they are not "entrants" when the study begins, attitudinal data from this sample would serve no useful comparative function in the research design. This instrument, then, serves

merely to increase the number of students for whom we have more complete background data than the EADS provide. Of particular interest are the following items on previous work experience, expected to provide key variables in defining the distinctive nature of the second step student.

- How many months of nursing experience did you have--

  a. -- BEFORE receiving your R.N. certification? (check here ____ if none)

Number of months Full-time*	Part-time**	Type of nursing experience:
_____	_____	Volunteer
_____	_____	Salaried aid work
_____	_____	Other health-field work: _____

  b. -- AFTER receiving your R.N. certification? (check here ____ if none)

Number of months Full-time*	Part-time**	Type of nursing experience:
_____	_____	Staff nurse in hospital or inpatient facilities
_____	_____	Head nurse in hospital or inpatient facilities
_____	_____	Supervisor in hospital or inpatient facilities
_____	_____	Staff nurse in clinic or outpatient facilities
_____	_____	Head nurse in clinic or outpatient facilities
_____	_____	Supervisor in clinic or outpatient facilities
_____	_____	Office nurse
_____	_____	Other (please specify) _____

  *Consider 30 hours/week or more as "full-time"
  **Consider 29 hours/week or less as "part-time"

- What was the most recent nursing position you had held, prior to entering the baccalaureate nursing program in which you are now enrolled? (Leave blank if "none.")

  Position (title or brief description) _____

  Employer (agency, organization, etc.) _____

  Approximate number of hours worked per week: _____

  Approximate salary before taxes, deductions, etc.: $ _____ per _____ in 19___ .
  (year)

d. First Year Survey

This four-page survey is given to students nearing the completion of their junior (or "first") year in the program. It is designed to accompany the NSEI, and to clarify the students' view of the school environment and setting as well as to assess their participation in and views about their nursing program. We ask, for instance, about distances from home to class, and time spent commuting; whether or not a "group spirit" existed among nursing students; and about the relationship of their department to the campus as a whole. To reflect the impact of that first year, we included the following:

- Attending college sometimes creates problems for the student or the student's family. Have you, or has your family, encountered any particular problems? (Please comment briefly)

- What has been the most valuable part of this past academic year for you? (Why?)

- What has been the least valuable for you? (Why?)

- Have you developed new perspectives about the profession of nursing this year (e.g., the role of nurses, attitudes toward different aspects of nursing, etc.)?

_____ 1. None at all Comments:
_____ 2. A few
_____ 3. A moderate amount
_____ 4. Quite a lot
_____ 5. A great deal

A few attitudinal items are repeated from the Entry Questionnaire in order to measure early change in these attitudes. Students complete this survey while they are in the midst of their educational experience rather than "before" or "after." Our intent is to capture their feelings during the course of their studies and to discern trends in the data they provide.

e. Student Group Discussion Guide

This represents another way of capturing student reactions during the period of enrollment. Since individual student interviews are not feasible during the crowded site visits to each campus, the only way to hear directly from a relatively large number of students in any detail is to talk to them in groups. This procedure serves somewhat the same function as would regular interviews with individual students, but with certain additional advantages as well as disadvantages.

On the positive side, the respondents react not only to the questions posed by the interviewer but also to answers given by fellow students, providing the investigators with additional information about the topic under discussion as well as a chance to observe student interaction in a relatively informal setting. Important clues as to attitudes, values, and behavioral norms may emerge in addition to the information directly requested. The major disadvantage is the loss of privacy for each individual respondent, which may strongly influence the way in which certain questions are answered. In a sense, students are put in the position of

making a "public" statement concerning the topic rather than of confiding a privately held opinion to an interested but anonymous listener. The discussion guide was developed with an eye to maximizing the advantages and minimizing the disadvantages inherent in this research technique.

The discussion guide was constructed around five topics:

1) Lateral roles: what RN students do <u>besides</u> going to school

2) Student/faculty interaction, in and outside of classes

3) Teaching styles and abilities in the Nursing Department

4) Curricular content and the "place" of non-nursing courses

5) Professionalism in nursing

The usefulness of the data gathered through the use of this instrument, as with any interview, is highly dependent upon the skill of the interviewer. It is also affected by the size and composition of the group. Too large a group tends to enhance the effect of more assertive and verbal students, and stifle those who are less so. A group of seven to ten students is large enough to include a variety of perspectives, yet not too many for full communication. Each session is tape recorded, freeing the researcher from the constraints of copious note-taking in order to concentrate upon guiding the discussion.

f. Graduation Survey

Most questions on this ten-page survey are repeated from the Entry Questionnaire in order to assess attitudinal stability and change. In addition, however, we build a retrospective "student evaluation" component into this instrument, asking graduates to judge the effects of the nursing program on their competencies and to indicate how they have changed during the course of their enrollment. A few illustrative items might include the following:

- Research reports show that students change in different ways and varying degrees during the college years. Some report changes in their interests and attitudes, some in professional commitment, some speak of major personality changes. Looking back over your own experience in this program, what have been the most important changes for you?

- How important for your own educational development have the following experiences been?

	Not Important		Somewhat Important		Very Important
	1	2	3	4	5
a. Lecture courses in major field					
b. Seminar courses in major field					
c. Clinical experiences in major field					
d. Courses in other fields					
e. Interdisciplinary courses					
f. Independent study courses					
g. Informal discussions with faculty					
h. Informal discussions with students					
i. Informal individual study, research					
j. Reading in connection with courses					
k. Reading independent of courses					
l. Field work in the community					

- Please indicate whether you feel you've changed in the following ways since you first enrolled in this program. For each item check the appropriate response.

	Decreased Much	Some	Little or No Change	Some	Increased Much
	1	2	3	4	5
Religious concernt and beliefs					
Political concerns or interests					
Intellectual interests in your field					
Intellectual interests in general					
Esthetic interests					
The firmness of your sense of identity					
Concern with social issues					
Concern with professional standards					

g. Faculty Nominations, Outstanding Graduates

At three points in the NSSP calendar, all nursing faculty from the participating programs are asked to select, from a list of the current graduating class, the fifteen percent whom they consider to be the outstanding nurses in that class. The first request is made as the study begins, and pertains to the most recent graduates--Class 2. Nominations from the next two classes are requested at the end of the Spring terms, Years 1 and 2.

The form in which this request is made does not specify the criteria by which such judgments are to be made. It simply lists all students in our study sample for that particular program who were graduated at a certain time, asks the faculty respondent to "underline the names

of those who are, in your opinion, the outstanding nurses in this group," and specifies the number of names to be underlined (equal to fifteen percent of the total number).

h. Post-Graduation Survey

All students in the combined samples who graduate prior to the end of the data collection (i.e., Classes 1 through 4) are asked to complete this brief three-page survey. It is administered by mail each November; thus, the amount of time elapsing between a student's graduation and the completion of the survey can vary considerably--a fact that will be carefully considered in analyzing the data it provides.

Items are designed to pertain to three areas of research interest. Our primary intent is to collect factual information as to the career patterns of second step program graduates. Samples of such items include the following:

- Regardless of your immediate employment situation, do you consider yourself, at present, to be:

  _____ 1. in the field of nursing
  _____ 2. not in nursing, but still in the health field(s)
  _____ 3. not in nursing or health field presently, but expect to get back to it later on
  _____ 4. not in nursing or health field; don't expect to return to either in the foreseeable future

- In which of the following areas are you working now? (Check all that apply.)

  _____ Direct patient care
  _____ Supervision of patient care
  _____ Administration, planning, management
  _____ Teaching (nursing related)
  _____ Research (nursing related)
  _____ Other (Please specify) _____

  a. Now go back and circle the check that represents most of your time and energy now.

- What is your current employment situation? (Check one, and indicate number of hours when applicable.)

  _____ 1. Full-time wage-earner, regularly employed (_____ hours per week)
  _____ 2. Part-time wage-earner, regularly employed (_____ hours per week)
  _____ 3. Wage-earner, not regularly employed but work an average of about _____ hours per week.
  _____ 4. Self-employed, currently working an average of about _____ hours per week.
  _____ 5. Funded graduate student (on scholarship, fellowship, etc.)
  _____ 6. Not employed at present. (Includes students without funding.)
  _____ 7. Other: (Describe briefly, including estimate of hours per week in paid employment.)

  _____

  a. If you are currently enrolled in an educational institution for degree credit:

  What is your major field? _____

  If receiving a stipend, what is the amount? $_____ per _____.

  What degree are you working toward? _____

- If currently employed (whether wage-earner or self-employed):

  What is your present position? (Title or brief description) _____

  Name of employer (agency, organization, "self," etc.) _____

  Your current salary before taxes, deductions, etc. (Estimates okay.) $_____per_____

  If supervisory position, how many persons do you supervise? _____

  What are your expectations of remaining in this position, barring unforeseen developments?

  _____ 1. Permanent, for the foreseeable future
  _____ 2. Uncertain; depends on what alternatives become available
  _____ 3. Temporary or short-term

In addition to these and other items concerning career patterns, this survey includes questions to elicit a retrospective and subjective evaluation of the educational experiences involved in the program. For example:

- In terms of your own professional growth, please indicate on a scale of 1 to 5, the value of the following aspects of your baccalaureate program in nursing.

	Of Little or No Value				Very Valuable	Not Applicable
	1	2	3	4	5	0
Course work (including reading, labs, etc.)	____	____	____	____	____	____
Clinical experience	____	____	____	____	____	____
Other "field work" (outside of class)	____	____	____	____	____	____
Association with specific faculty members	____	____	____	____	____	____
Interaction with other nursing students	____	____	____	____	____	____
Other: _____	____	____	____	____	____	____

  a. Now go back and circle the check for the item you feel was most valuable for you.

- If you had it to do over again, and knowing what you know now about the program, would you still enroll in the program from which you earned your baccalaureate in nursing?

  _____ 1. Definitely yes
  _____ 2. Probably yes
  _____ 3. Don't know
  _____ 4. Probably no
  _____ 5. Definitely no

Finally, we assess once more each respondent's interest and level of involvement in various professional activities related to nursing. Students from whom we have complete longitudinal data (Class 4) will thus have responded to such items at three points in time: as entrants, as graduating seniors and as alumni. From these data we are able to measure change in this important area.

i. Supervisor Rating Scale

Along with the Post-Graduation Survey, graduates receive a simple form requesting the name and address of their immediate supervisor and permission to contact the person named. When that information and permission is returned, we send out a short (one-page) Supervisor Rating Scale.

As mentioned earlier, this instrument includes a few queries about the respondents themselves. The central item, however, is the following:

- How would you rate this employee with respect to the following characteristics, in comparison with other baccalaureate nurses you know and/or supervise? (Check one in each line. If you feel that you simply have no basis for making a judgment concerning a particular characteristic listed, please check the "unknown" column and leave that rating blank.)

	Unknown	Very Low	Below Average	Average	Above Average	Very High
	0	1	2	3	4	5
a. Commitment to nursing	____	____	____	____	____	____
b. General intelligence	____	____	____	____	____	____
c. Ability to perform assigned tasks	____	____	____	____	____	____
d. Motivation, initiative	____	____	____	____	____	____
e. Sound judgment	____	____	____	____	____	____
f. Makes workable suggestions for change	____	____	____	____	____	____
g. Communication skills	____	____	____	____	____	____
h. Problem-solving ability	____	____	____	____	____	____
i. Self-esteem, self-confidence	____	____	____	____	____	____
j. Responsibility	____	____	____	____	____	____
k. Sensitivity, concern for others	____	____	____	____	____	____
l. Leadership skills	____	____	____	____	____	____
m. Potential for advancement	____	____	____	____	____	____

With the Supervisor Rating Scale, we complete the description of data-collection tools constructed to obtain information from and about the students themselves. The three remaining instruments to be described are focused somewhat more broadly to provide a better understanding of the programs as whole, functioning units.

j. Faculty Questionnaire

This four-page survey consists primarily of open-ended questions. It begins with a few biographical questions concerning the respondent's own professional background and development, and goes on to ask about specific courses taught, about the tone of faculty interaction in the department, and about the overall experience of teaching in a second step program. For example:

- If you have taught elsewhere, please compare that experience with teaching here. (Are there any restrictions in facilities or curricular structures, or increased options? Does program philosophy help or hinder you? If you team teach, what effect does that have on you?)

The final page contains a pre-coded item which deserves

special mention. Adapted from a forced-choice question which was developed in the early Sixties to assess student perceptions of the nursing profession (Olesen and Whittaker, 1968, pp. 126-129), this item appears in three separate NSSP instruments: the Entry Questionnaire, the Graduation Survey and here in the Faculty Questionnaire. The data generated will thus permit a number of interesting comparisons, not only among the various faculty samples, but also of faculty responses vs. those of students. The item itself appears on the following page.

k. Faculty Interview Guide

This instrument guides the NSSP site visitor in conducting individual semi-structured interviews with a number of faculty members on each campus. The interviewer is free to pursue certain items at greater length, and to reorder questions to encourage smoothness of communication. Tape recordings provide a verbatim transcript of the entire discussion. The interview is designed to take a little less than an hour, although that may vary in either direction depending upon the interest and/or the "style" of the individual respondent.

Nine topics are covered during these interviews:

1) Distinctions perceived (if any) between second step graduates and graduates of generic programs
2) The place of "liberal arts" in nursing education
3) The role of social sciences in the curriculum
4) Student/faculty interaction
5) Teaching style, approach and/or philosophy
6) Faculty interaction within the nursing department
7) Clinical facilities and how related to educational program
8) Effect of the location and surroundings upon the program
9) Respondent's own philosophy of nursing

l. Administrator Interview Guide

Because the programs participating in the NSSP were among the first to implement a second step curriculum, the leaders of these six programs can speak from considerable experience about the initiation and development of such programs. They have been able to observe the effects of their behavior and decisions with respect to program development and the achievement of accreditation. This interview guide is designed not

- Below are listed certain characteristics which different people attribute to nursing. We want you to consider each characteristic from two vantage points:

  If the characteristic corresponds with your own picture of nursing as it exists at present, place a check mark in the column on the left-hand side of the page. DO THIS REGARDLESS OF WHETHER YOU PERSONALLY APPROVE OR DISAPPROVE OF THIS CHARACTERISTIC, JUST AS LONG AS IT SOMEHOW FITS YOUR PICTURE OF NURSING. Do this left-hand column first. (Check as many as apply.)

  If the characteristic is one you would like to see as important in the future of nursing, place a check mark in the column on the right-hand side of the page. DO THIS REGARDLESS OF WHETHER OR NOT YOU THINK THE CHARACTERISTIC IS CURRENTLY PART OF NURSING, JUST AS LONG AS YOU WOULD LIKE TO SEE IT AS AN IMPORTANT PART OF NURSING IN THE FUTURE. Do this column second. (Check as many as apply.)

Characteristic Corresponds With My Picture of Nursing as it Exists Now	Characteristics	Characteristic I Would Like to see as Important in the Future of Nursing
____	Order and routine	____
____	Clear cut lines of authority	____
____	Originality and creativity	____
____	Dedicated service to humanity	____
____	Moving ritual and ceremony	____
____	Hard work	____
____	Clearly defined work tasks, each person responsible for his/her own specific job assignment	____
____	Close supervision and direction	____
____	Exercise of imagination and insight	____
____	Religious inspiration and calling	____
____	Meticulousness	____
____	Job security	____
____	Human drama and excitement	____
____	High technical skill	____
____	Emotional control and restraint	____
____	Frequent innovation in the solution of problems .	____
____	An occupation highly respected in the community .	____
____	Solid intellectual content	____
____	Demonstrating care and concern for others in an immediate and tangible way	____
____	Other characteristics in your picture of nursing or of importance in the future of nursing	____

Please specify: _____

only to elicit "facts" about how programs dealt with the goal of gaining NLN accreditation, drawing upon the leader's practical experience in getting her program over that hurdle, but also to generate insights which will help to define each administrator's leadership style.

Previous research has identified eight major areas of responsibility considered most important among baccalaureate nursing program administrators (Stanton, 1976; Zehr, 1976). These areas constitute topics for the interview:

1) Budget
2) Community service and relationships
3) Curriculum and instruction
4) Faculty
5) Institutional policy making
6) Professional responsibility
7) Research
8) Student affairs

The major focus of the interview is to determine which if any of these areas posed a potential problem in the achievement or non-achievement of NLN accreditation, why it was problematic and how it was dealt with. Because the achievement of accreditation is generally acknowledged to be of central importance in the development of any academic enterprise, such a discussion contributes significantly to our understanding of each program's history as well as providing important information concerning leader/follower relationships.

3. Observations and document review

In a single-campus study, where the researcher is either employed on the campus or at least has frequent and easy contact with students and faculty in their natural habitat, direct observation provides a large part of the real information s/he has available for analysis--more, in most cases, than the researcher is consciously aware of. Understanding a program by being a part of it or by having close contact with it establishes an unconscious knowledge base that gives rise to a host of assumptions about the true nature of the program--its curricular structure, methods of operation, and prevailing attitudes and values--many of which

tend to go unexamined by the "insider." An outside observer often perceives elements that would go unnoticed by those who live and work within the setting, simply because of their utter familiarity.

At the other extreme, the research design which depends entirely upon data from tests, questionnaires and interviews conducted by "field workers"--i.e., where the researcher has only "indirect" knowledge of the setting as inferred from written or published sources--can also lead to a distorted view of reality. What may be a very obvious interpretation of certain findings to the insider may never occur to the outsider.

Because the subjects of our six-campus study are so geographically scattered, the use of direct observation as a means of data collection is severely limited. Annual site visits of two days' duration on each campus provide the sum total of our opportunities for experiencing each of the settings. How to maximize and supplement the informative value of those brief visits in terms of data-gathering is therefore an important aspect of the NSSP methodology.

First, what is it important to observe? Actual behaviors observed in classrooms, corridors and clinical sites are of obvious importance, as are notes taken during interviews and group discussions. Among the subjects one would hope to understand more clearly by direct observation are: personal interactions, the actual classroom content of courses, teaching styles and communicative proficiency, the general "feel" of a program's philosophy translated into concrete acts, and the institutional, environmental and attitudinal context in which the program exists.

Second, given the brevity of actual observation time, how can you supplement the value of your own experience? That is, what can you take back to your desk for qualitative analysis besides your notes and your impressions of what you have seen and heard? A flippant answer might be "anything that's not tied down"; the more dignified term we use to describe all these "other" sources of information is "documents."

Researchers can work with documents in at least two ways: they can extract certain factual data, and they can infer or speculate as to what the document writers think about the facts. The kinds of facts one can derive from nursing program documents include requirements for entering the program, costs of attending, the number and kinds of classes

students must take, inside and outside of the department, the individualized options available, etc. What writers of such documents think about their department and its curriculum is quite another matter. We usually call this the program "philosophy."

When reviewing documents (catalogues, brochures, accreditation statements, etc.), one must keep in mind that while information on departmental requirements and offerings is usually given in a fairly straightforward manner, program philosophy is more subtle. Those who contribute to or author the documents choose to include some statements, phrased in certain ways, and to exclude others. When researchers find patterns in the carefully formulated statements by which people choose to characterize a program for public presentation, such patterns assume unusual importance as empirical evidence concerning that program.

C. The Detailed Timetable

Chapter II discussed the necessity for setting up an overall timetable with reasonable checkpoints to allow for the entire project to proceed at a reasonable pace throughout the entire funding period. Detailed timetables, including a listing of the various tasks necessary to complete intermediate goals can be helpful in several ways. They encourage you to think through the various steps necessary to meet each goal, to arrange these tasks in a logical sequence, and to assign them to the appropriate staff member well in advance of the due date.

The overall timetable provides the due date for major events. In scheduling the intermediate tasks, it is a good idea to work backward from that date, deciding approximately how long each step should take and then setting a reasonable pace to accomplish it. For written reports, it is well to remember to include such things as typing and proofreading as all of these things take time and must be completed before the final deadline.

D. The Research Team: the staff and the budget

Having gone into considerable detail about what we plan to accomplish and how, it seems appropriate to devote a few paragraphs to a topic rarely mentioned in routine research manuals: namely, who is going to do

the work.

In the real world of grant-funded research, it is fairly typical for the research team to be at least semi-defined at the time the proposal is submitted. The design itself, then, reflects what you assume to be the interests, general areas of competence and specific capabilities of those who expect to be on the payroll. Not only does this allow you to draw up a contract with some assurance of being able to fulfill it, but it also saves virtually weeks (or months!) of bureaucratic footwork entailed in recruitment procedures. The net effect of this circumstance is that staffing and budgeting are, in a sense, an integral part of the methodology, with each part of the equation highly dependent upon the other two.

To implement the NSSP methodology, a variety of skills and knowledge are necessary, some of which are more obvious than others. The role of the Evaluation Associate, for example, is crucial--someone to represent our research interests on each of the six campuses, to alert us to impending problems before they become crises, and to manage the mundane but crucially important aspects of actual data collection. Without such on-site assistance, we would be obliged to curtail data collection drastically, limiting ourselves to one class of students and a small sample of the faculty from each program. This assistance was made possible through an equitable exchange of services. Thus, the participating academic units garner certain desirable benefits from participating in the project: a comprehensive program evaluation, access to a broad spectrum of data about their own program for internal use and free consultation as well as enhanced national visibility via project publications and conferences. In return, the Department Head on each campus selects a faculty member whose interests and abilities match the needs of the Project, and provides that person with enough release time from normal academic duties (to equal approximately 25% FTE) to serve as the NSSP Evaluation Associate.

Equally obvious is the need for central staff whose expertise assures us of the accurate and efficient management and analysis of all quantitative data. Since many data-collection tools are specific to the NSSP (as distinguished from published instruments), data management begins not with the processing of returned materials, but with designing the data-collection schedule and finalizing the instruments themselves for optimal effectiveness. Similarly, it extends well beyond programming computer

analysis and obtaining print-outs, through to interpreting and presenting the data, maintaining documentation, setting up an efficient data-retrieval system, forecasting budgetary needs for quantitative analysis, and writing up the details of the quantitative methodology for project reports. Considering the complexity of the quantitative data sets to be accumulated, sixty hours per week are earmarked to handle these tasks: a full-time Data Analyst and a half-time Student Assistant.

Next, consider those aspects of the NSSP methodology which depend entirely upon the demanding and time-consuming techniques of qualitative analyses--interviews, direct observation, open-coding of qualitative data from surveys, interpretation of documents and artifacts, etc. Although such data form a very small proportion of the total data set, the very nature of the overall research objectives (see page 16) points up the importance of this analytic approach to their ultimate achievement. Qualitative research strategies derive basically from the social sciences. It is no coincidence, therefore, that the discipline of sociology is well-represented in the academic backgrounds of those who posed the objectives, designed the methodology, and comprise the research team. One full-time position is built around this area of competence; the title of Project Educator indicates that in addition to being accountable for all qualitative analysis, this member works closely with the Evaluation Associates in the further development of their research competence.

The use of qualitative strategies also has another impact upon the research team and, it follows, upon the budget. Not only do the analyses themselves require more time than statistical manipulations of quantitative data, but they often represent a large investment in terms of secretarial time, particularly in the transcription of literally reams of taped interviews, classroom observations, field notes, etc. Adding these tasks to the already complex one of managing the research headquarters, voluminous correspondence amongst our "branch offices," and coping with the stresses of putting out the ambitious number of reports and publications which are planned, we prudently budgeted another sixty hours a week to handle that work load: a full-time Administrative Assistant and a half-time Typist.

The least obvious, and at the same time perhaps the most indispensable role to be played in the implementation of this particular research

design is that which may be referred to as coordination, administration, leadership and/or management--bringing all the working parts together, keeping them moving on schedule toward the accomplishment of the broad aims of the project, being accountable for the synthesis of the various research strategies as well as the production of scholarly reportage, and acting as effective liaison between the NSSP, the nursing profession broadly defined, and the funding agency. Two Co-Director positions are carved from the budget to serve these functions. One (half-time), representing an in-depth and experienced-based knowledge of the nursing profession and its key personnel as well as a track record of successful grant administration, oversees the budget and maintains long-range planning in accordance with the salient concerns of the nursing profession and of the funding agency. The other (full-time), representing research expertise in higher education and professional experience in dealing with both quantitative and qualitative research strategies, participates centrally in the actual conduct of the evaluation and is accountable for both methodological decision-making and quality control in the overall outcomes of the research process.

Our human and financial recources, then, provide a total of 220 work-hours/week by central staff and another 60 hours/week by Evaluation Associates. Since our project as a whole entails the accomplishment of three non-research objectives (see pages 16-17), some of these resources are diverted to work not directly related to the evaluation study itself. A conservative estimate of research needs alone, however, would amount to at least 175 hours/week. The NSSP methodology is designed and implemented with those resources assured. Readers who plan to adapt this design to their own purposes can, of course, subtract many of those hours for basic planning, administration, decreased data volume, etc. The bottom line, however, must pay for the skills and expertise which the "adapted" methodology will ultimately require.

Notes

1. Table 6 of the CFI Handbook (Cattell and Cattell, 1959, page 52) suggests a simple linear age correction for subjects over the age of twenty-seven. Subsequent research (Barton, 1973), however, indicates that while scores do tend to decrease with increasing age after the early twenties, the level of scores tends also to level off at about the age of forty. These findings suggest the following age-correction table, used in the interpretation of NSSP results.

AGE	RAW SCORE PLUS:
26 or less	0
27 - 31	1
32 - 36	2
37 - 42	3
43 or more	4

2. Readers who wish to obtain copies of specific instruments described in this manual may do so for a small charge to cover the costs of duplication and mailing. Such requests may be addressed to:

   The National Second Step Project
   c/o Department of Nursing
   Sonoma State University
   Rohnert Park, CA 94928

3. An early NSSP staff decision, for instance, was to dispense with the effort to obtain an accurate reflection of "units previously earned" (Form A), since little or no consensus existed as to what an "earned unit" actually represented. On the positive side, however, the process of coping with problems of interpretation, clarification and definition, inherent in the completion of these forms, can provide unanticipated and useful insights. "Withdrawal," for instance, tends to be an ambiguous and ill-defined concept which may be incorporated into an overall enrollment pattern in a variety of ways. How a student goes through school(s) may reflect that individual's own characteristic approach to formal education; how an academic program defines and deals with non-continuous enrollment patterns may, in turn, reflect its own philosophy of education and achievement. Being alert to the conceptual potential of the data you collect, even from such a seemingly cut-and-dried instrument as the EADS, can contribute to the analytic quality of the completed data set.

CHAPTER IV

PROCEDURES: Putting the Plan Into Action

So far, we have dealt mainly with planning--admittedly a large part of the research process, but hardly the whole story. We have delineated the background and context for the evaluation, posed the objectives, designed a methodology, and specified by whom and by what means the study is to be carried out. In this chapter, we move from planning to action.

A. Data Collection

The instruments and techniques by which raw data are gathered, according to the NSSP methodology, have been described in some detail. In the mind of the researcher, however, data collection begins prior to the actual "use" of those instruments and techniques. Thinking about how they are to be used and how their informational yield is to be dealt with is, in that sense, an essential part of the data collection process, as are methods for defining and insuring an adequate response rate. The following pages discuss some ways and means of accomplishing those tasks.

1. Finalizing the project-designed instruments

Drafts of most data-collection tools were appended to the project proposal, providing our funding agency with a notion of the types of instruments we had in mind. Between that time and their actual use, however, a number of steps were necessary--some conceptual and some technical. Critiquing and finalizing early drafts of original research tools is necessary in order to insure the adequacy of the data base, and to facilitate data processing. The following suggestions may prove helpful in approaching those tasks.

First, make a variable list. It should include everything you really need to know, regardless of whether such information is best collected by means of tests, questionnaires or interviews. Be specific. "Family background," for instance, is probably too vague to include as a variable, whereas "father's occupation" may (or may not) be of interest. If you hope to build on previous research, review those findings for clues to key variables that you may wish to consider adding to your list.[1] Most important, check the completed list against your research objectives. Be

sure your informational needs are covered; delete variables that are not relevant. Then, in reviewing the tentative drafts of your data-collection instruments, question the inclusion of items that appear extraneous to your needs.

Next, consider the response categories of all pre-coded items. What "choices" are available to the respondent for answering a multiple-choice item? Do they exhaust the possibilities for responding, such that each person will be able to find an appropriate response? Are they mutually exclusive, such that each respondent can easily select one single appropriate response? Items that have produced clear, trouble-free data in previous research are useful in this regard.

Along the same lines, consider the level of measurement. This is especially important in pre-coded attitudinal items which usually include a scale from "low" to "high." Is the level of measurement appropriate for the intended analytic techniques? Since our quantitative analytic plans include some scaling and index construction, we settled upon a 5-point scale for most attitudinal items.

With not one but several samples from each school, we have a wide choice of potential respondents for each question we pose. Can the information best be provided by an entering student, a student mid-way through the program, a graduating senior, an employed graduate or a faculty member? Some items are most appropriate for one particular sample, while others may be posed to two or more samples in order to yield comparisons over time or among groups of respondents.

The distinctive advantage of a longitudinal design is that it permits, in addition to cross-sectional comparisons, measures of individual change. This advantage can be lost, however, unless those items through which "change" is to be measured are stated such that the data they produce will be truly comparable. To assure comparability requires careful attention to both the wording and the timing of the data-collection tools. Readers who plan to adapt the NSSP design to their own research purposes should be alert to some of the common problems related to the measurement of change in cohort analysis (Glenn, 1977, pp. 27-41). For example:

--Are the respondents themselves truly comparable? (For instance, is an answer requested of "all students" at one point and "women only" at another?)

--Are the response categories identical? (For instance, is the high end of a scale labled as "important" at one point and "crucial" at another?)

--Is the response subject to short-term fluctuation? (For instance, hours devoted to "studying" may vary widely depending on how close to final exams the questionnaire is administered.)

--Were influential but "external" factors the same? (Does a salary increase, for example, indicate real advancement or merely inflation?)

Attending to all these details, drafts of the entire set of articulated instruments are constructed and carefully reviewed for clarity, style and flow as well as for relevance to specific research needs. Cutting and pasting, the final lay-outs are assembled, the data-processing codes added, and the completed tools are readied for use. The first page of the Entry Questionnaire appears on the following page as an illustration of style and format.

2. Sample lists

From each of the six participating programs, the NSSP collects data pertaining to five classes of students (see page 23) as well as from the faculty. "Listing" the sample is no simple task. We compile six lists of faculty and thirty lists of students or ex-students (graduates). Knowing who comprises each sample is essential.

The faculty sample is quite simple and inclusive. All faculty and administrators who teach and/or advise students as the study begins are included in the sample. Each is given a three-digit identification number; the first identifies the school and the latter two are sequential numbering of all faculty within that program. Student samples are considerably more complex.

Each Evaluation Associate lists by date of entry every student from whom we expect to collect data. In order to do that, however, we must first answer an important question: What constitutes entry? In a two-plus-two program, there may be no clear beginning point, since many students simply continue from lower to upper division. Thus, some take supporting courses before beginning their nursing coursework while others take these later. To add to the confusion, schools often admit students at two or three times during an academic year. It becomes necessary, then, to specify precise criteria enabling each student to be "assigned" to a class, and to apply these criteria on a case-by-case basis.

Your name: _____
(to be removed when ID # is assigned)

NATIONAL SECOND STEP PROJECT

ID #_____ 1-5
(Leave blank) 6-2
7-8-01
9-consent

ENTRY QUESTIONNAIRE

1. What was the highest level of education attained by your parents?

Father	Mother		
			10
_____	_____	1. Some high school (or less)	11
_____	_____	2. High school graduate	
_____	_____	3. Vocational or business training other than two-year college	
_____	_____	4. Some college, but no degree	
_____	_____	5. Graduate of a two-year college	
_____	_____	6. Graduate of a four-year college	
_____	_____	7. Post-graduate study but no degree	
_____	_____	8. Master's degree	
_____	_____	9. Doctoral or professional degree beyond the Master's level	

2. Please indicate your parents' usual occupations during the time you were in high school.

Father: _____ 12-13

Mother: _____ 14-15

3. Approximate combined yearly income of your parents (at present):

_____ 1. Under $5,000
_____ 2. $5,001 - $10,000
_____ 3. $10,001 - $15,000
_____ 4. $15,001 - $20,000
_____ 5. $20,001 - $25,000 16
_____ 6. $25,001 - $30,000
_____ 7. Over $30,000
_____ 8. Have no idea
_____ 9. Not applicable (both deceased)

4. In what religion have you been raised? _____ 1. Catholic
_____ 2. Jewish
_____ 3. Protestant 17
_____ 4. Other
_____ 5. None

5. What is your current marital status? _____ 1. Single
_____ 2. Married
_____ 3. Divorced or separated 18
_____ 4. Widowed

6. Number of children? _____ (What are their ages? _____) 19

a. Please go back and circle the ages of those that are living with you. 20

7. With whom do you share your current living situation? (check all that apply)

_____ No one (I live alone) 21
_____ Spouse or mate 22
_____ My children 23
_____ Parents, in-laws and/or other relatives 24
_____ Adult(s) not related to me by kinship--with or without children 25

8. If things work out the way you want, when would you like to get married?
(If currently married, check here ____ and go on to the next question.)

_____ 1. Within the next three years
_____ 2. 3 to 5 years from now 26
_____ 3. 6 years or more from now
_____ 4. I don't want to get married

SAMPLE

When "term of entry" is determined for all students, identification numbers are assigned consisting of five digits. The first denotes the school, the second the class (by academic year), and the third the term of entry. The fourth and fifth digits provide a sequential numbering of students in that school, class and term of entry. This functions similarly to a postal zip code.

Since our data-gathering plan is based upon the respondent's status in the program (i.e., entrant, end-of-first-year, graduate, faculty, etc.), each phase of the data collection requires a list of persons to whom certain instruments are administered. Forms were created in order to maintain records of what data should be acquired for each individual as well as to record when such data are received. One form records each student's status at the end of each term: enrolled and completed, withdrew, did not enroll, graduated, etc. This is used to define a "target sample" for each instrument at the various data-collection points. Others list each target sample (both student and faculty) and have boxes to be checked when each instrument is received.

3. Obtaining consent and insuring confidentiality

To comply with Rights of Human Subjects regulations, every respondent must consent in writing to participate in the research effort, and procedures to insure the confidentiality of the data they provide must be strictly observed. On the next page is an example of our student consent form. Forms sent to other respondents, such as faculty and post-graduate samples, differ slightly in wording and detail, depending upon the recipients and the extent of their expected participation. In all cases, however, voluntary consent must be obtained and kept on file throughout the conduct of the research.

Respondents' ID numbers are coded directly onto all tests, questionnaires and interviews, after which names are removed from research instruments. Matching lists of names and ID's are kept only in the central project office. Thus, magnetic tapes or copies of the IBM cards can be made available to the Evaluation Associates should they wish to perform additional analyses of the data, while maintaining confidentiality.

Our proposal states that no information that could be traced to individuals may be released to non-project staff. If participating

ID # _____

CONSENT TO PARTICIPATE IN RESEARCH

As part of a longitudinal and comparative research study conducted by the National Second Step Project and (name of institution) Department of Nursing, I agree to complete the limited number of questionnaires and tests requested from time to time.* I understand that the data contributed by me will be held confidential and that all findings from the study will be presented in such a manner as to insure complete confidentiality. I understand that my participation is voluntary.

_____
Signature

_____
Date

Print Name: _____
First Middle Last

Permanent Address: _____
Street No.

_____
City State Zip

SAMPLE

*If you have already graduated, the enclosed survey will be the only one you will be asked to complete.

programs desire access to certain of the NSSP data for other research, they must obtain additional consent from their own student samples for these other purposes. Individual respondents, of course, may send a written request and receive certain findings pertaining only to themselves, such as a personality profile, since no breach of confidence occurs in that instance.

4. Distribution and follow-up

The first step in distribution is handled by the central staff. All self-administered instruments, consent forms, instructions, and cover-letters which pertain to a particular sample at a particular point in time (e.g., "entering students, Fall 1978") are assembled and an individual packet is made up for each respondent. These packets contain everything the respondents need to know in order to understand and participate in the research effort, including a brief but convincing appeal for their cooperation. The idea is to make it as easy as possible for the person receiving each packet to respond to your request; a postage-free self-addressed envelope for the return of all materials is a must.

Take a positive approach. Make the assumption that each person who receives a packet will respond fully; do not offer alternative procedures for not responding, such as suggesting that blank questionnaires or unopened packets can be returned to the departmental office. It's true that participation is voluntary, but requesting the return of blank materials at the time of initial distribution is self-defeating. That step is taken (if at all) only after all possibilities for achieving a 100% rate of return have been exhausted. This is especially important in a longitudinal research design, where sample attrition can threaten all subsequent analyses.[2] Once the packets are assembled, they are put together in batches by target sample (e.g., "entering students," "returning students," "faculty," etc.) and bundled for distribution to the six campuses.

Response rates tend to be higher when data are collected by people close to and known by the respondents rather than by a distant and impersonal agency such as "The National Second Step Project." Therefore, the Evaluation Associate on each campus distributes and collects all pencil-and-paper instruments. This involves setting up testing sessions for the timed administrations required for NLN Achievement Tests and the CFI; arranging for the "personal" distribution of packets to on-campus

respondents accompanied when possible by a "pep talk" to encourage their participation; and mailing out Post-Graduation Surveys to recent graduates --which often means ascertaining current addresses beforehand. Central staff members conduct the interviews, but the Evaluation Associate does the advance work and sets up appointment schedules.

One topic not often discussed in research books is composing cover letters for questionnaires administered by mail. They are worth mentioning, and should be written with at least three basic assumptions in mind. 1) Your respondents are probably not eager to fill out your survey form. Give them a convincing reason for doing so. 2) They may not even want to read your letter. Keep it as short and interesting as possible. 3) Their decision as to what to do about it will probably be made within five minutes of opening the envelope. A "due date" far in the future will encourage them to put it on the back burner and subsequently to lose it. Ask for an early return, specifying a date when feasible.

The Evaluation Associate maintains a list of who returns packets and conducts follow-up activities as necessary to retrieve those still outstanding as of the suggested due-date. The type of follow-up--whether "in person," by phone or by mail--will depend upon 1) the number of non-respondents to be contacted and 2) their accessibility. Tact, diplomacy and persuasiveness are often required, but also the quick recognition of an adamant non-respondent in time to avoid unnecessary antagonism. Again, the best approach is a positive one, stressing the potential influence of each individual's input on the future and directions of their program. Both students and faculty need to understand the importance of their responses and to feel that their time and effort contributes to some worthwhile purpose.

5. Interviewing, observing and collecting documents

These three data-collection techniques differ in two important respects from the survey methods employed in the use of questionnaires and standardized tests. 1) They produce data that is essentially subjective and qualitative in nature, even though quantifiable variables may emerge from the subsequent analysis of such data; and 2) in the NSSP design all three take place almost simultaneously, within the constricted time period of two-day site visits to each campus.

These visits must, of course, be coordinated with the

Evaluation Associates far enough in advance so that travel and lodging arrangements can be made. Additional factors in this planning process include 1) avoiding holidays and pressure points, such as exam week, in the academic calendar so students are not too preoccupied with those matters to give us a full and accurate view of the program; 2) doing several schools in a sweep due to time and budgetary restrictions; 3) securing permission to observe in classroom and clinical settings; and 4) selecting student and faculty interviewees and alternates.

As discussed in the previous chapter, semi-structured interviews are scheduled with three sets of respondents: faculty, administrators and students, the latter being "interviewed" in a group discussion format. Although the chief administrator of each program is easily identified, considerable thought and planning goes into the selection of which faculty and which students will "represent" the opinions and attitudes of these larger samples.

To maximize the usefulness of data gathered from group discussions with a small number of students, we set certain criteria for inclusion in the potential pool of cases from which discussants are selected. First and most obvious, they must be currently enrolled and present on the campus at the time of site visits.[3] Second, they must have agreed to participate in the NSSP research, and have a signed consent form on file. Third, only those students with a relatively complete file of entry-level data are included in the population from which group discussants are selected. Finally, we weight the interview sample in favor of our true longitudinal sample, not by excluding earlier entrants but by stratifying the resulting population by class, and randomly selecting a majority of discussants from Class 4.

Faculty interviewees are chosen somewhat differently, although slight variations of the first three criteria outlined above obviously apply (being on campus during site visits, and having both a signed consent form and other research materials on file). Total faculty samples, however, are quite small in comparison with students. Furthermore, the range of their contact with, knowledge about and actual involvement in the program as a whole can vary considerably, affecting their value as the "best" source of information. One may merely teach a single required course from another department; another may come in one evening a week to supervise a few

students in a clinical setting; while a third may have held a full-time teaching appointment in the program since its inception and chair the curriculum committee. Questionnaires completed by the total faculty sample (see page 40) make these kinds of facts available, and permit a three-way grouping of the total population along a dimension of participation/involvement.

Faculty interviews, then, actually comprise a sort of experience survey (Selltiz, 1976, pages 94-97). Only when the number of "high participation" faculty members equals more than can be interviewed during the brief site visits does random selection become necessary. It is important to note that because of this method of selection, interview data cannot legitimately be claimed to characterize the faculty as a whole. The primary aim is to generate insights rather than statistical descriptions. Quantitative findings from faculty interview data are generalizable only to the population of "high participation" second step faculty.

All interviews and discussions are taped for later transcription, leaving the interviewer free to concentrate on maintaining rapport, eliciting pertinent information and "observing" (and noting for future reference) those affective cues which often transmit as much information as the actual words that are spoken.

Two staff members are primarily responsible for collecting qualitative data from each site. Their tools consist of 1) interview guides, sample lists and appointment schedules; 2) a notebook and a small unobtrusive tape recorder; 3) as much prior knowledge about the site as they can absorb before setting out; and 4) an alert, naturally curious and open mind. On a two-day site visit, everything seen or heard is potential data. Bulletin board information next to the Nursing Department office can tell you about things like the formality and cohesion of events and social life in the department; faculty and student dress can be noted; the hours of campus eating facilities can tell you when people are on campus, and so on.

Observation, when used as a research strategy, implies more than looking and listening. The most difficult part of the technique, especially for the novice, is to write down <u>what</u> you see and hear--not just what you think about it. The events themselves, in recorded form, comprise the raw data; the observer's impressions of those events are inferences

which may be substantiated, refuted, changed or elaborated upon as further data is acquired.

Finally, the collection of "documents" completes the NSSP data-gathering procedures. This term covers a broad range of printed matter--anything that is considered informative in terms of the research questions. Copies of departmental accreditation reports are probably the most difficult to obtain of the various documents one might select, but hand-out sheets, program newsletters, and a variety of other materials are usually readily available.

B. Data Processing

In a long-term research effort such as that represented by the NSSP, both data collection and data processing take place more or less continually from beginning to end--or at least until both are completed, which is usually a few months prior to the end of the funding period. Survey instruments are continually administered, interviews are intermittently conducted, and the resulting data are continually processed for further analytic use.

From preceding sections of this manual, the reader is well aware that our research design calls for the extensive use of both qualitative and quantitative strategies. Although the goal of both strategies is the accumulation and interpretation of information that will guide the researcher in addressing the overall research objectives, processing the data that are acquired by means of these strategies differs in several ways, one from the other.

Many qualitative strategies necessarily imply that the entire research process, from the posing of a question through to the interpretation of a "finding," proceeds in a highly integrated fashion. The persons conducting the research are aided by interview guides and tape recorders, but they themselves create the indispensable link and the intellectual filter between an external reality and an internal assessment of the meaning of that reality. They decide, from one moment to the next, how a question is to be phrased, whether or not a response is adequate, which observations are to be recorded in field notes, which documents are worthy of adding to their collections, and how best to pursue and "test out" a concept that has begun to take shape. Through conversations, individual

interviews, group discussions, observations and the collection of "evidence" in the form of documents, ideas are constantly generated and refined in the mind of the trained investigator. These ideas influence not only the ultimate outcomes of the research--i.e., the eventual descriptions and explanations of the phenomenon under examination--but also the constant selection of which particular "data" are worthy of further exploration and analysis. It is this flexibility and fluidity--the simultaneous nature of collecting, mentally "processing," interpreting and then validating one's own perceptions with constant reference to the phenomenon being explored--which characterizes the real strength of qualitative research, and which also distinguishes it most clearly from quantitative methods.

Quantitative strategies are necessarily segmented. The usefulness of quantitative data in addressing the overall questions posed is determined by the ingenuity of the researcher at several separate and time-specific points in the research process: selecting and/or constructing the instruments themselves, setting up the data-collection design, insuring an adequate rate of return, accurately processing the raw data as they are received, employing appropriate analytic techniques and taking care to observe the rules of interpretation which each analysis implies. Once the research tools are in the hands of the respondent, however, the investigator is totally removed from the research process until the raw data are available for processing.

The following pages treat the topic of data processing separately for information gathered by qualitative and by quantitative methods. Although both procedures lead to the solution of the research problem by the accumulation and organization of relevant empirical data, the means by which this is accomplished requires an awareness on the part of the researcher of the potential strengths and weaknesses of each strategy.

1. Qualitative data

Since this is a handbook rather than an introductory textbook covering unspecified research content, this section on qualitative data processing is arranged according to source. Although we can be quite specific about how each type of information is processed, the underlying principle is always the same: to retain the diversity of the information you have collected, seeking unifying themes which make sense of it all

and lead to inferences, but without losing the original flavor and meaning.

There are four basic sources of qualitative data in the NSSP: open-ended items on questionnaires; individual and group interviews; field observations; and document reviews. In each case, the basic data-processing strategy is to approach the data with as few preconceptions as possible, to summarize and classify whatever information emerges, then to review its patterns and linkages with other data for analysis and interpretation.

a. Items from questionnaires

Each questionnaire contains some questions to which the respondent is invited to write in rather than simply to "check" a response. Such questions generally request a personal view of a broad topic, where pre-coded categories may tend to restrict or distort the respondent's thinking, and where the "flavor" and context of the answers are as important as the factual content. It is useful to have all such responses from a given instrument and for a given respondent typed onto one page. Although this may seem like a trivial step, its basic purpose is to increase both the accessibility and the sheer legibility of the data. Researchers can easily scan responses without flipping through stacks of thick questionnaires and deciphering a variety of handwriting styles. And, since names are replaced with identification numbers, copies of the transcripts can be made available to Evaluation Associates for use in program development without jeopardizing confidentiality.

When available for all persons responding to a single instrument, such transcripts facilitate cross-sectional scanning. Each respondent's answer to a specific questionnaire item appears in roughly the same "place" on each transcript, so responses can be read through for patterns, trends, and divergences. The researcher looks also for underlying themes which create the patterns. Such themes may serve to characterize large numbers of responses, to discern unifying elements in tone, content and/or implied attitudes and values; or they may serve to distinguish several equally prevalent but competing and/or conflicting types of responses to a single question.

By bringing together all the prose and commentary that a single respondent has furnished in responding to a variety of questions, the transcripts can often provide a quick overview of that person's overall

attitudes and orientations at the time the questionnaire is administered (for example, "at entry"). Both the expressiveness and the factual content of the commentary as a whole may suggest global characterizations of respondents, useful in later analyses.

For students in the longitudinal sample (Class 4), the transcripts serve still another purpose. Ideally, at the end of the data-collection period we have four pages of open-end responses and relevent commentary from each of these graduates: at entry, at the end of their first year, as they are graduating and after they are in the field as baccalaureate nurses. This constitutes a rich and concise body of qualitative data that can be reviewed for evidence of change and development over time.

b. Faculty interviews and student discussions

Two forms of data emerge from these informants. The primary one is the verbatim transcription of tapes recorded during the sessions. As with the questionnaire transcripts, this facilitates reading through the same topic items on all of them. Although each separate transcript is lengthy and detailed, the number of transcripts from each campus is quite small in comparison with those from questionnaires. Thus, responses can often be usefully summarized by topic, and note taken of recurring patterns and divergences from them. Sometimes it is possible to summarize a "modal" response, although conflicting statements are also recorded. Responses given by faculty and student discussants on each campus are thus reduced in form to about one page for each topic.

The secondary form of data consists of notes made by the interviewer during or just after the session. Strictly speaking, these are field observations. Among the things the interviewer records are distractions that may have hindered the thoughtfulness of the answers, mitigating interpersonal influences, like the perception that the respondent is trying to make a good impression, or is shy, or reacts adversely to the interviewer. One dimension of validity is the extent to which the informant was able to give accurate and forthright answers. This is especially important during the student discussions, since being in a group might make respondents bolder or more timid. It is useful to have one researcher conduct the discussion, while another takes notes on interaction.

c. Field observations

Direct observations are made in classrooms, at meetings, during interview and discussion sessions, and wherever something worth noting is happening. It is important that they be recorded immediately, either in writing or spoken onto tape. In addition to the direct recording of actual events, field notes also include the observer's perceptions of, reactions to and insights stemming from those events. The skilled observer is keenly aware of the distinction between these two types of qualitative data; the first indicates what occurs, whereas, the second, equally important, represents an interpretation of what that occurrence means. The best field notes are vividly descriptive, including both types of data and making clear where one stops and the other starts.[4]

Anecdotes and informal conversations may be sufficient to create their own categories of interactional behavior, of responses to institutional and environmental situations, etc. However, especially with observations made during a brief site visit, it is far more likely that they will aid in the interpretation of larger and more systematic sources of information, such as questionnaires or interviews.

All observations are typed and eventually used to augment data from other sources, or if comprehensive and extensive enough, to serve as a fully independent data source. Each transcript is initially classified according to the source of the observation: classroom, clinical visits, conversations, etc. The later organization of that information depends upon its substantive content and the relationship of that content to specific areas of research interest.

d. Program documents

Program documents run the gamut from one-page hand-outs on new entrance requirements and course names, to notices of student activities, to detailed curriculum brochures, to lengthy expositions of departmental philosophy for accreditation review. Documents are virtually anything written that can be picked up during a site visit and which pertain to the areas of inquiry in the study.

They are one source of data for establishing formal and informal manifestations of departmental goals and how they are implemented. In creating a second step model, our tactic is to look for the extent to

which there are similarities of requirements and themes among the six campuses, to determine common goals and means of achieving them. Our primary intent is not to "measure" the extent to which programs actually conform to the goals they set. Rather, we use the document review to define the goals and methods common to all the programs, as well as to note variations and discrepancies among them.

Documents are approached first by making a recording sheet indicating basic areas of research interest with plenty of space for making notes. For example, we make notes on the "curricular structure" by recording which courses a student must and can take, on the influence of subjects outside the nursing department and so on. As these sheets are filled in, some areas may be abandoned as inapplicable, and others added that were not anticipated. We process information from documents by extracting and classifying segments that we find revealing, but we add to and subtract from those topics and classification schemes according to what the documents tell us is significant. Does the nursing program have a special recruitment policy for men? Write it down under "admissions policies." Did you find a hand-out sheet announcing a group to air student complaints? Depending on content, it may pertain to "faculty-student interaction," "academic standards" or elsewhere, but write it down.

Some information gleaned from documents can be coded and entered into the quantitative "program data-set" (see page 87), but it lends itself to much broader usage as well. It can help to guide the interpretation of specific findings arising from other sources, and it can provide insights useful in formulating a theoretical model of second step nursing education.

In processing qualitative data, the researcher attempts to "use" all the information which an individual respondent provides--not merely facts but the attitudinal and affective context in which the facts are given. In doing so, the person who processes the raw data actually imposes his or her own thoughts <u>about</u> the material upon the data. Since this is essentially a subjective process, it is advisable to have more than one person review qualitative data. This not only furnishes additional perspectives on the real "meaning" of what the respondent has written and how responses should be classified, but it also aids in the recognition

and reduction of bias on the part of the researchers.

2. Quantitative data

Processing large quantities of quantitative data requires accuracy and attention to detail. If the original responses are not recorded accurately and in the correct places, all subsequent analysis will be meaningless. Great care exercised here will be more than appreciated at each subsequent stage in your research.

a. Codebook

In order to know how to locate any piece of data and to provide instruction to coders and keypunchers, write a complete codebook for each instrument that provides quantitative data. This document has many uses, and there is undoubtedly a direct correlation between when it is written and the number of serious data-processing problems you will later encounter. As an example of format, the first page of the NSSP codebook for the Entry Questionnaire appears on the following page.

The first two columns give the location of the variable --the card and column(s) in which the information is stored. The third column is left blank. Raw frequencies can be added when they are available. The fourth column reports the source of the information--which item on what instrument produced the variable. The next column shows the name you give to the variable; this can be either a defining word or abbreviation, such as REGION or GPA; or it can be a sequential alphanumeric listing, such as V1, V2, etc. Next comes a label for the variable, the codes and labels for the codes. Most computer programs have provisions for labeling variables and values but restrict the number of keystrokes (letters or digits) allowable for this purpose.

Codes should be definitive and mutually exclusive; coding categories should not overlap. As far as possible, code similar responses to different questions the same way throughout the survey, such as no = 1 and yes = 2. Make allowances for missing data; not everyone will answer every question, and some people will not return all instruments. Open-ended questions require special treatment, as discussed in the following chapter (see pages 77-79).

Card	Col(s)		Item	VAR Name	Variable and Value Labels and Codes	Type	Where Reappears
1	1-5				ID #		
	6				6=2		
	7				Quality Control		
	8				Card No. - 1		
	9				Consent: 1 - Yes 2 - No		
			1		Parents highest educational level		
	10			E1	Father	ORD	
	11			E2	Mother	ORD	
					1 - Some H.S. 2 - H.S. graduate 3 - Vocational/business training 4 - Some college 5 - Two-year college graduate 6 - Four-year college graduate 7 - Post-graduate study 8 - Master's 9 - Doctoral/Professional 0 - Missing data		
			2		Parent's occupation		
	12-13			E3	Father	ORD	
	14-15			E4	Mother	ORD	
					01 - Unskilled 02 - Semi-skilled 03 - Skilled manual 04 - Clerical and sales 05 - Minor professional 06 - Lesser professional 07 - Major professional 08 - Homemaker, housewife, student 09 - MD, RN or medical professional 99 - Deceased/not applicable 00 - Missing data, but applicable		
	16		3	E5	Parents' income	ORD	
					1 - Under $5,000 2 - $5,001 - 10,000 3 - $10,001 - 15,000 4 - $15,001 - 20,000 5 - $20,001 - 25,000 6 - $25,001 - 30,000 7 - Over $30,000 8 - Have no idea 9 - Not applicable 0 - Missing data		
	17		4	E6	Religion	NOM	S4
					1 - Catholic 2 - Jewish 3 - Protestant 4 - Other 5 - None 0 - Missing data		

SAMPLE

The last two columns will prove useful in the analysis stage of your research. "Type of variable" refers to its level of measurement.[5] This alerts the researcher to the appropriate statistical techniques to use with this variable. "Where Reappears" indicates the variable name when that item reappears in another instrument. This is for use in constructing change scores or analyzing change data.

b. Editing and coding

Each questionnaire should be checked by someone thoroughly familiar with the coding scheme in the codebook. S/he should clarify ambiguous responses and decide the appropriate codes for open-ended questions which are preclassified, such as occupational categories. Certain responses will require decision-making. For example, when a respondent marks two responses to one item, or checks "other" and writes in a response that clearly fits one of the pre-coded responses, the person checking the survey decides how that response should be coded. These decisions should be consistent throughout the editing and coding process.

Apparent inconsistencies in a respondent's answers also need to be dealt with. A respondent may say she earned $12,000 per month. Some clue may be available in other responses as to whether she meant $1,200 per month or $12,000 per year or something else. If there are no clues to inconsistent data, one can either code precisely what the respondent reported or consider that response to be "missing."

When coding categories have been derived for open-ended items, the appropriate code should be written on the questionnaire next to the respondent's answer. After being thoroughly reviewed for clarity, consistency and accuracy, the questionnaire is ready to go to the keypuncher or data entry operator.

c. Keypunching

The keypuncher should have a copy of the questionnaire and one of the codebook. It is recommended that each card be keypunched and verified for accuracy. A verifier is a machine similar to the keypunch machine; it checks the cards as the data is retyped and marks a notch in each column in which there is a discrepancy. The data can then be rechecked

with the original questionnaire and corrected. If it is not possible to verify the data as it is entered, other methods of cleaning the cards are available; such as proofreading each card or "spot checking" every few cards.

After cards are keypunched and verified, they should be sorted into sequential ID order with second, third and fourth cards following behind the first card for each ID number. This is done on a device called a counter-sorter which is available in most computer centers. Then a printed listing of the cards is made and reviewed for obvious errors, such as the data ending in the wrong column, or identification numbers being incorrect. The listing will also show if certain cards are missing for individual cases, and this error can be corrected.

After you are satisfied that the cards are accurate and in the proper order, they can be submitted with the necessary computer program for data analysis.

d. Programming

Several software packages appropriate to the use of statistical analysis exist. The most common one, and the one that NSSP uses, is Statistical Package for the Social Sciences (SPSS) (Nie et al., 1975). Its many advantages include the availability of a well-written and fairly easy-to-follow manual. It also has numerous sub-programs that allow you to do most statistical procedures.

Once the initial program is written and combined with the data into a systems file, subsequent analysis often requires only several lines of programming. On the following page we have included an example of the program for the first page of the Entry Questionnaire.

e. Debugging

Debugging a program requires executing a computer task using both your program and data and seeing that it makes sense. In SPSS, use of the Batch format for debugging gives you a correspondence table for checking to see that each variable is being read from the correct card and column of data. This is a crucial check; the computer reads any number and makes no judgment as to whether or not that number is correct.

LIST

```
FILE NAME        ENTRY,PROGRAM FOR ENTRY QUESTIONNAIRE
VARIABLE LIST    ID,CONSENT,E1 TO E15
INPUT MEDIUM     DISK
N OF CASES       425
INPUT FORMAT     FIXED(F5.0,2X,3F1.0,2F2.0,1JF1.0)
MISSING VALUES   E1,E2,E5,E6,E7,E10 TO E14(0)/E3,E4,(00,99),E15(0,7)/
VAR LABELS       E1,FATHER'S EDUCATION/
                 E2,MOTHERS EDUCATION/
                 E3,FATHERS OCCUPATION/
                 E4,MOTHERS OCCUPATION/
                 E5,PARENTS INCOME/
                 E6,RELIGION/
                 E7,MARITAL STATUS/
                 E8,NUMBER OF CHILDREN AT HOME/
                 E9,AGES CHILDREN AT HOME/
                 E10,LIVES ALONE/
                 E11,LIVES WITH SPOUSE/
                 E12,LIVES WITH CHILDREN/
                 E13,LIVES WITH PARENTS OR RELATIVES/
                 E14,LIVES WITH UNRELATED ADULTS/
                 E15,MARITAL PLANS/
VALUE LABELS     E1,E2(1)SOME HS(2)HS GRAD(3)VOC OR BUS(4)SM COLL
                   (5)2 YR COLL(6)COL GRAD(7)PG NO DEG(8)MASTERS(9)DOC OR PROF/
                 E3,E4(01)UNSKILLED(02)SEMI-SKILLED(03)SKILLED MANUAL
                   (04)CLERICAL(05)MINOR PROF(06)LESS PROF(07)MAJOR PROF
                   (08)HOMEMAKER(09)MEDICAL PROF(99)NA/
                 E5(1)< $5000(2)5001-10000(3)10002-15000(4)15001-20000
                   (5)20001-25000(6)25001-30000(7)OVER 30000(8)NO IDEA(9)NA/
                 E6(1)CATHOLIC(2)JEWISH(3)PROT(4)OTHER(5)NONE/
                 E7(1)SINGLE(2)MARRIED(3)DIV OR SEP(4)WIDOWED/
                 E8(8)8 OR MORE(9)HAS-NT AT HOME/
                 E9(0)NO CHILDREN(1)YNG 5 OR LESS(2)YNG 6-12(3)YNG 13-18
                   (4)YNG 19 OR MORE(5)NT HOME <19(6)NT HOME 19+/
                 E10 TO E14(1)NOT CHECKED(2)CHECKED/
                 E15(1)WI 3 YRS(2)3-5 YRS(3)6+ YRS(4)NEVER(5)DONT KNOW/
FREQUENCIES      GENERAL=E1 TO E15
```

SPSS also has an EDIT function that checks and points out errors in the program. After the program is error-free, attach the data and run frequencies for all variables. Check each variable for numbers that are out of range, such as a "7" in response to an attitude scale of "1 to 5." If these "impossible" numbers occur, identify the case by ID number, check the original source of the data, and correct the data file. This is basically the last step in cleaning the data. Quantitative data are now ready for analysis.

C. Providing Feedback to Participants

The NSSP, like most social and educational research, is highly dependent upon the cooperation of a great many people--not only the central and extended staff, but those from whom information is sought. In the case of the NSSP, these include program administrators, faculty, students, graduates and even graduates' supervisors. Most of these sources are contacted more than once during the course of the investigation. A mechanism for maintaining a spirit of goodwill among all these informants, and thus for encouraging their continued interest and participation, is that of providing them with some tangible proof that the time and efforts they have "given" have produced some worthwhile results.

The watchword here is multiple usage. As you process the data received from each sample and ready it for further analysis, consider which of your informants, as well as which other significant audiences mentioned in Chapter II (see pages 13-14), might find such data interesting and "rewarding." In most cases, this is the only payment they will receive for the contribution they have made to your research effort--a way of saying "thank you." But the same data summary can, if you consider the format ahead of time, probably form a section of an annual report and perhaps serve other dissemination functions as well.

The Evaluation Associate on each of the participating campuses is the NSSP's lifeline to students, faculty and administrators. Until this point in the project, they have functioned primarily as data collectors; but once the data have been collected and processed, they take on two additional roles. 1) They receive copies of all preliminary reports and findings from the study which they can then make available to other audiences on each campus--both faculty and students. 2) They may also receive,

upon request, processed data relating to particular questions which they themselves can then pursue by using segments of the NSSP data base in conjunction with their own ideas regarding methods and analysis.

Reporting back to other participants is less automatic, though no less important. The Evaluation Associate informs both faculty and student respondents that they may request findings from segments of the study in which they participate. Such requests may come in the form of a letter, or may simply be jotted in the margin of a questionnaire or included in a "free commentary" section. Regardless of the formality or informality with which the request is phrased, the wise researcher will respond promptly and courteously. If even preliminary findings of the type requested will not be available for some weeks or months, a brief note acknowledging their request and promising to fulfill it as soon as possible can go a long way toward promoting a positive attitude toward the "next" questionnaire that respondent will receive.

Special mention should be made of the use of qualitative data in this regard. As students respond to questions such as "What did you find most valuable about the program?", " ... least valuable?", "What changes would you like to see?" and so on, they compile a veritable treasure chest of compliments, criticisms and constructive suggestions. The researcher can learn a great deal from such commentary, but another very significant audience is, of course, the faculty and administrative personnel of the program being described or reacted to. Once the material has been typed and all identifying marks removed, these typed transcripts can be furnished to the department Chair, who, in turn, can share them with faculty, committees, etc. Most academic programs are continually striving for improvement; the frank and unbiased reactions of their students can be a most valuable guide, and will be greatly appreciated.

How much feedback a study can realistically provide to participants, of course, depends in part upon the number of participants. The NSSP, with some two thousand respondents all told, cannot hope to send a report of findings to each one, although a small single-campus study might find this feasible and worthwhile. We do, however, furnish brief summaries of findings to key personnel at each campus site whenever possible, encouraging each recipient to make such feedback available to others as they see fit.

One word of caution: although it is our intent to be generous with the useful information we obtain as we go along rather than to keep it needlessly locked away from view until publication, some care needs to be exerted in the manner in which this is done in order to protect the legitimate interests of the researcher. The release of specific bodies of data must be scrutinized for anonymity. Qualitative data, such as direct quotes from questionnaires or interviews, must be screened for identifying names and phrases. Even quantitative data, such as percentage distributions and sample means, can, in some cases, be "sensitive information." They should be free from all institutional identification prior to release to an outside audience. Finally, the researcher must take care to emphasize the "preliminary" nature of all pre-publication releases, scrupulously avoiding the statement of "final" conclusions and/or recommendations, and informing the potential reader that early indications of findings are subject to change as the analysis progresses.

D. Responsibilities, Communication and Continual Decision-Making

We have already described the research team: seven central staffers and six associates "in the field." (See pages 45-48.) Coordinating the activities of this group calls for the setting up of areas of responsibility, channels of communication and decision-making procedures.

Research organizations, like any other work group, can range from the highly centralized to the highly decentralized. In the former, one person or "office" actually does the research with or without the help of other people and/or services; in the latter, the whole team is involved in all phases of the project. Each has its advantages and disadvantages, but the very nature of the work undertaken by the NSSP, interdisciplinary in focus and explanatory in its ultimate objectives, argues for a non-bureaucratic or decentralized approach. Each member of the team is accountable in some measure to one another, but is primarily accountable for contributing to the overall achievement of the long-range and intermediate goals of the project.

In a decentralized or "horizontal" organization, communication assumes a place of primary importance. Although every member needs time and space to work independently, frequent interaction is vital since most, if not all, decisions affect not one but several aspects of the integrated

research design.

Among the central staff members, weekly meetings are held, with an open agenda continuously posted for each researcher to jot down topics that warrant the attention of the group at the next meeting. Flexibly defined as "team meetings," these can take the form of budgetary discussions, crisis intervention if an immediate problem surfaces, or seminars for sharing substantive research interests. Beyond this discussion time, drafts of all written work emanating from our research are constantly circulated amongst the team for commentary and critique.

Face-to-face communication with the Evaluation Associates is more difficult, but equally necessary. A two-day orientation workshop scheduled very early in Year 1 brings the entire team together in one place for discussion and further planning. In years 2 and 3, invitational conferences continue to serve this purpose as well as that of presenting project outcomes to a wider audience. In the Spring of all three years, members of the central staff travel to each participating campus for consultation as well as for data-collection. Finally, these face-to-face contacts are supplemented by a system of telephone contact and by frequent correspondence.

There is no denying that such an elaborate communication scheme is costly to maintain, both in travel dollars and in professional staff time. Democracy was never noted for its economy and efficiency. Nonetheless it represents a system which we feel is highly appropriate to our research objectives; 1) it permits each member to work semi-autonomously, thereby encouraging creativity and encompassing a diversity of work styles, but 2) it also insures that all major decisions made, which occur with alarming frequency, have the support of those whose work they necessarily affect. Especially for a complex research design involving an interdisciplinary approach, we recommend it as slow and expensive but, in the long run, cost effective.

Notes

1. Since much of the NSSP is an outgrowth of our previous Demonstration Study, we carefully reviewed what had been learned from that experience. Were all the instruments useful? Could they have been more productively used? Which specific items were redundant, ambiguous or otherwise expendable? What did we want to know that was not asked in the previous study?

2. Many studies have discussed the effects of attrition in longitudinal research (Vollbrecht, 1977). In the NSSP design, although the "total" longitudinal target sample (Class 4) numbers approximately four hundred at entry, the separate sub-samples, by participating program, range from a high of n=120 to a low of n=32. We, therefore, set a minimum acceptable response rate at 75% for Class 4 entry-level data.

3. Theoretically, this has the effect of limiting the student interview sample for Year 1 site visits to Classes 3 and 4, and for Year 2 to Classes 4 and 5. In reality, students from the earlier samples (Classes 1 and 2) may be still enrolled, due to part-time attendance or "stopping out" for one or more terms.

4. Laughter, for example, can express a variety of emotions. Consider the difference between these four accounts of a hypothetical event:

   "J. laughed and left."

   "J. giggled nervously and hurried away." (She seems embarrassed; doesn't want to pursue this conversation.)

   "J snorted and stalked off." (I think she was offended.)

   "J. chuckled but was called away before she could reply." (Seems interested and sympathetic.)

5. NOM = Nominal; ORD = Ordinal; INT = Interval; DICH = Dichotomous. See Chapter V, page 88, for description and definitions of the first three levels of measurement. A dichotomous variable is one in which there are only two choices.

CHAPTER V

ANALYSIS: Producing "Findings"

The arrangement of topics in this manual has been seemingly sequential: from design to methodology to the collection and processing of data, and to be followed now by the analysis and interpretation. In a longitudinal study, however, the latter part of that neat sequence is mostly myth. From the day the first data are returned, the next three parts of the "sequence"--processing, analyzing and interpreting--are set in motion, and they proceed more or less simultaneously until the final report is edited to everyone's satisfaction. Nonetheless, this chapter continues the theoretical sequence.

Clearly, the analysis of qualitative data presents problems quite distinct from those presented by quantitative analysis. Each employs its own strategies to reveal and support its own findings. Their roles in the research process are complementary, and they share a common goal: to extract from thousands of individual bits of information a coherent body of new knowledge sufficient in both scope and accuracy to address the NSSP research aims.

A. Qualitative Analysis

The NSSP research design includes the analysis of qualitative data relating to all three major areas of research interest: (1) student characteristics; (2) educational patterns and milieu; and (3) types or processes of academic and professional achievement. In the preceding chapter, we discussed ways of processing such data from each of the instruments and/or techniques used. That data processing produced, in each case, typed transcripts. In the case of questionnaire items, interviews and formal discussions, the typed transcripts represent the sum total of all the verbal evidence that has been collected. In the case of field notes and document reviews, the transcripts represent a selection of evidence chosen by the researcher as being particularly informative and revealing. This chapter pertains to the next level of activity: working with the transcripts in order to generate findings which, combined with those produced by quantitative analyses, will be helpful in addressing

the questions and thereby characterizing the Second Step model of nursing education.

1. Deriving coding categories

a. Open coding

When certain questions are asked of all respondents in a certain sample to which they "write in" rather than "check off" a response, the phrases (or paragraphs!) with which they answer such questions are qualitative data even though they are incorporated into what may be primarily a "quantitative" data-collection tool. Several such items are included throughout the NSSP instruments. For example, the last item in the Entry Questionnaire asks: "What are your long-range plans for a position in nursing?" The very manner in which the question is posed is purposely open, allowing for a variety of responses rather than specifying categories, such as:

____ in hospital
____ in clinic
____ in community

or:

____ direct care
____ supervision
____ administration
____ teaching

or even:

____ to attain a leadership role
____ to continue my current role, and increase my salary
____ to work part-time for supplementary family income
____ no long-range plans formulated

Let's assume that every student writes something in that space. The task of the qualitative analyst is to review those responses and determine the best ways of extracting meaning(s) from them that can then be coded and entered into the data set. We refer to the process by which this is accomplished as "open" coding. It applies to the handling of many other types of qualitative data besides merely coding questionnaire

responses; but since this is perhaps its simplest application, and usually the one which needs to be done first, it is discussed first in that context.

Essentially, the researcher reads through all or, if that is impossible, through a representative sample of the written responses to a given question. This is not in order to "assign" each response to a pre-determined category, but rather to arrive at the most useful way(s) of categorizing them. The responses themselves, in conjunction with the theoretical research interests which caused the question to be asked, are thus the basis upon which the categories are built.

Two things are worth noting here. First, different classifications of responses may occur to different readers. For this reason, it is useful to have more than one person review the transcripts and discuss the categorization scheme prior to its final incorporation into the codebook for that instrument. Second, it is not uncommon for a single qualitative item to yield more than one set of useful categories.

In the example given, "your long-range plans for a position in nursing," the data might well include enough information to permit codes relating to "type of position" such as:

Public health nurse
School nurse
Hospital administrator
Nursing faculty member
Etc. (This could be quite a long list.)

But they might also contain information that could be coded along a dimension of theoretical interest to researchers, such as "clarity of long-range goals," which might run something like:

No long-range plans stated, either within or outside nursing
No long-range plans with respect to a nursing position, but some future plans are stated
Long-range plans in nursing, but vague or tentative
Long-range plans in nursing, clearly stated

In general, then, the idea is to use what is there to best advantage, trying not to duplicate information that is coded elsewhere, "losing" as little as possible from the sum total of the data provided, and keeping in mind the theoretical interests which stimulated

your asking the question.

When the classification scheme(s) and categories are decided upon, write them down, being as specific as possible as to how the distinctions are to be drawn and including several examples as guidelines. At that point, the classification scheme becomes a variable, and the categories become codes. Continuing with the example given above, we might derive two (or more) variables:

(First Variable) Long-range plans: Type of nursing position

(Codes)
0 - No information re: type of position, or no response
1 - Public health nurse
2 - School nurse
3 - Hospital administrator
4 - Nursing faculty
(etc.)
9 - Not applicable (no plans for a position in nursing)

(Second Variable) Long-range nursing plans: degree of clarity

(Codes)
0 - No indication of degree of clarity
1 - Relatively vague or tentative
2 - Relatively clear-cut

9 - Not applicable (no long-range nursing plans)

The researcher has now "quantified" the qualitative data from that particular questionnaire item. With the variables and the codes defined and specified, the next step is to go through the entire sample and code the item by assigning the code number that stands for whatever each respondent has written. Those codes are entered into the quantitative data set as representing what that person has said in answer to that question. Again, since this is an interpretive process, different coders may interpret a response differently; inter-coder reliability is discussed later in this chapter.

b. Global coding

A second type of coding often undertaken with qualitative data is called "global" coding. In this process, researchers make use of a broader range of information than that supplied in response to a single item. They may review an entire instrument or even a set of instruments from a single respondent, with an eye to characterizing those responses and thereby indirectly characterizing that respondent.

In the Demonstration Study (Jako et al., 1978), for example, researchers became interested in the general "orientation toward nursing" with which students entered a second step program. Although no single questionnaire item "asked" such a question (indeed, it would be almost impossible to ask!), preliminary findings from various sources had suggested that it was an important area for exploration. By reading through all the qualitative data that students furnished at entry, several classification schemes were suggested and discussed. The one that was finally selected as the most promising entailed looking at each student's answers to a group of open-ended questions and ascertaining from that information how each student seemed to view his or her role vis-à-vis the nursing profession: 1) Traditional, 2) Academic, 3) Leadership and 4) Frontiering. Each "orientation" was carefully defined and examples were given. Five specific variables were derived from these data.

The first four could be thought of as attitude scales, each pertaining to one of the above-mentioned orientations and coded as follows:

0 - no qualitative data pertaining to nursing orientation at entry
1 - no evidence of this orientation
2 - some evidence of this orientation, but ambiguous or "weak"
3 - clear-cut evidence of this orientation, relatively "strong"

The fifth was a nominal variable and entailed a judgment on the part of the researchers as to which of the four orientations was "dominant" for this particular respondent. Thus the categories for coding this variable were:

0 - no qualitative data pertaining to nursing orientation at entry
1 - Traditional orientation dominant
2 - Academic orientation dominant
3 - Leadership orientation dominant
4 - Frontiering orientation dominant

As with open-coding, the next step is to go through the entire sample and code the relevant information by assigning the code number that best represents whatever each respondent has written. Resulting codes are entered into the quantitative data set, representing everything that the respondent has said which serves to indicate "nursing

orientation" and the researchers' judgment or interpretation of that information.

2. Overall strategies and outcomes

Deriving coding categories for questionnaire items is perhaps the simplest form of qualitative analysis--a mere starting point. The basic mental process involved in both open coding and global coding are to some extent characteristic of all qualitative analysis: reading or otherwise assimilating the empirical evidence that is available, and arriving at a defensible judgment concerning the classification or interpretation of that evidence. But whereas the desired outcome, in the case of questionnaire data, is usually the quantification of prose responses such that they can be entered into the data set along with other responses from that instrument, this is by no means the goal of most qualitative analysis.

a. Defining areas of research interest

Semi-structured interviews with faculty and administrators, group discussions with students, observational field notes and a variety of documents from each participating program furnish a formidable morass of evidence to be assimilated and transformed from "processed data" into findings. The general idea is to orient oneself in some useful direction and to set some priorities before rushing headlong into the unknown. For the qualitative analyst, the best guidelines are the research questions which originally stimulated the collection of data. What s/he learns may extend beyond the "answers" originally sought, but it should go at least as far.

Looking back at page 16, it is easy to compile a long list of research interest areas. Many, however, are most efficiently addressed by means of quantitative data, so in setting priorities we leave those aside for the moment and look for areas in which qualitative assessment is likely to produce the best source of insights, concepts and findings. A preliminary listing of such areas includes:

1) Information about students, with regard to:

. personal goals and changes in goals
. professional commitment

2) Information about educational patterns, with regard to:

    . administrative policies
    . admission criteria
    . manifestations of program objectives

3) Patterns of personal interaction among faculty, students, administrators and health professionals

4) Teaching styles

5) Curricular designs

6) Regional, historical and institutional contexts within which programs develop

7) Indications of program development, with regard to:

    . program objectives:

        . how expressed, formally and informally
        . means of implementing; strategies for achievement

    . organizational structure:

        . how formulated
        . evidence of stability and/or change

8) Contributions to the nursing profession:

    . perspectives on the profession
    . definitions of nursing roles

This is not to say that only qualitative data are used to illuminate these areas. But just as quantitative data are better suited to providing, for example, student data on demographic and personality attributes, our qualitative data are more useful in examining, for example, faculty teaching styles. All areas of research interest are ultimately explored by considering the sum of our knowledge gleaned from all sources and research strategies. In the above areas, qualitative analysis is expected to lead the way.

Finally, it is well to remember that although the list of topics is already quite long, an overriding characteristic of qualitative analysis is its ability to accommodate and intellectually exploit the unexpected. In that sense, the list is considered tentative until the analysis is complete.

b. Organizing the data

The list of research areas best approached through the analysis of qualitative data is the starting point for the systematic

handling of a large and diffuse body of information. These are the things about which the analyst should be able to speak authoritatively at the end of the analysis. New topics and sub-topics may be added during the course of the investigation, but none of the basic areas can be ignored.

Collection, processing and analysis are carried on simultaneously over an extended period of time, each serving to direct and refine the other two. Although the NSSP design includes only a microscopic amount of "field work," when compared to studies which are built around the use of participant observation as the primary research strategy, still the investigator has some opportunity to develop ideas with regard to a particular area, and then to go back "into the field" in order to test out those ideas--to see if they continue to hold water in the light of new evidence collected.

Let us consider, as an example, the fifth area on the preceding list: curricular design. A catalogue description of a program may provide the initial clues about its curriculum. Ideas formed by reading the catalogue may be further refined and developed by reviewing information furnished in the Faculty Questionnaire; what faculty members say about the curriculum may conflict with the catalogue description, or it may merely clarify the "official" description. The first site visit then provides an opportunity for finding out more about the curriculum and for observing its implementation--talking to faculty, to students and to administrators as well as observing in classrooms and clinical practice settings. And the evaluation component of the Graduation Surveys completed by graduating seniors provides still another perspective. As materials continue to accumulate, the researcher's original notions concerning this one area, curricular design, may be considerably revised, strengthened or focused; unifying concepts and themes may emerge, or disparate perceptions may signal divisive elements which need to be explored further. The second site visit provides the final opportunity for "on the scene" questioning and observing, although pencil-and-paper data will continue to accumulate until the end of the data-collection period.

Since curricular design is only one of a number of areas explored in this fluid manner--constantly working back and forth between the formulation of ideas and the further testing out of those

ideas in the light of additional evidence--some method of organizing the empirical evidence as it accumulates is of the utmost importance.

It is virtually impossible to "tell" a researcher how best to deal with a large body of qualitative data such as that collected over a three-year period in the NSSP design. The number of methods in current use is probably about the same as the number of qualitative analysts. Some prefer to work directly with "original" materials, making marginal notes, color-coding with felt pens, developing and elaborating upon (or discarding) concepts as they go along. Others may set up elaborate card files, indexing and cross-indexing as they go--by topic, by source, by time period, by type of data, etc. Still others prefer to work more or less intuitively, jotting down notes and ideas as they read through the materials, making theoretical connections and then going back to search for illustrative examples and clarification. The most common approach is probably some combination of these various methods. None are infallible, and none are "wrong."

The bottom line is that the data will be most useful when they are somehow grouped around the important research areas to which they pertain. Exactly how this is accomplished depends in large measure upon the working style of the research team. When the final report is written, however, the researcher needs to be able to reach into a file of materials related to each of the major areas addressed, and to find therein empirical evidence adequate to support inferences, concepts and conclusions.

c. Outcomes of qualitative analysis

The kinds of research activities we have described can yield outcomes of several types and levels of generality. The simplest process is the derivation of coding categories for single items from questionnaires or structured interviews. It requires looking at only one bit of information from each respondent. At the next level is the derivation of global coding categories for single respondents, each of whom has provided roughly equivalent "amounts" of information to be considered. This is a more complex process, in that it requires an overview of several segments of data and an interpretation of the combined "meaning" of those several responses, such that the respondent can be characterized or

described in a certain way. Both these activities, however, yield simple classifications of responses and/or of respondents. The raw data may come from either questionnaires or structured interviews or both; the objective is to "quantify" the qualitative data so that the information is thereby available for a variety of statistical analyses along with several hundred other bits of information.

Most qualitative analysis, however, is not aimed primarily at quantification but rather at the generation of ideas and concepts, and at achieving some insights into the way these concepts go together to "explain" the phenomenon under investigation--in this case, the second step model of nursing education as represented by the six participating NSSP programs. Although the cognitive processes involved in open-coding and in global coding--essentially reviewing and interpreting the evidence that has been collected--are characteristic of qualitative analysis per se, the overall objective is much broader. Rather than understanding a single response from a single respondent, it contributes to our understanding of the dynamics of a complex social phenomenon. The desired outcomes, then, are concepts which serve to explain that phenomenon.

In our search for explanatory concepts, we review a multitude of data emanating from six campuses and pertaining to an expandable number of research interests. In each area, the leading question is: "What have we learned, so far, about (for example) student-faculty interaction on this campus?" Think about it; review the evidence; write down what you think you know; discuss it with others; come up with a descriptive summary--a paragraph or a couple of pages, but something. Then proceed to the next campus. When you've reviewed and summarized the knowledge gained from all six campuses, you may have generated a number of possible explanatory concepts--ideas and themes abstracted from the descriptive summaries which seem important and noteworthy, either because of their recurrence in the data or because of their relevance to other areas of research interest. Fine. Go on to another area--teaching styles, for example--and pursue the same process again.

If that begins to sound like an endless process, you have guessed correctly. It is rarely undertaken as methodically as described in the previous paragraph, but it is carried on more or less

continually. The payoff, however, is that eventually the ideas and concepts which emerge from evidence pertaining to one area can be seen to relate to other areas as well. Since the object of the game is to generate concepts which help us to understand the dynamics of a complex social phenomenon, the most productive and useful concepts are those which shed light upon more than one aspect of the phenomenon under investigation.

The basic assumption which underlies all qualitative analysis is that the social phenomenon being studied, which can be as small as a single household or as large as a giant corporation, is somehow coherent; thus, that it can be understood "as a whole," and that all aspects of its functioning relate to that "wholeness." In the best of all possible worlds, the concepts which emerge from such an analysis, although arising from thousands of separate empirical facts, will somehow "fit" with one another such that they combine to create an abstract but valid description of the phenomenon itself: i.e., what the social scientist calls a "model."

B. Quantitative Analysis

Because the Second Step model of nursing education is relatively new and "unknown," the NSSP research objectives (see page 16) dictate an exploratory approach in both qualitative and quantitative analyses. Two implications of that approach, in the use of quantitative data, are that (1) the researcher works with a relatively large number of variables, any of which may play a significant role in the evaluation of this curricular model, and (2) s/he typically employs a variety of statistical techniques in order to learn how these variables relate to one another in this particular educational setting. With lots of variables and lots of statistics, it is easy to get lost in a maze of numbers which may or may not coalesce to tell a coherent story in the final analysis.

Before we get into the details of quantification, then, a few words of general advice. First, keep at least one eye on the research questions at all times. Each analytic procedure should serve the purpose of helping to address them. Second, take time to understand each statistical technique before you use it--especially the assumptions upon which it is based. Third, devise a way of keeping track of "where you've been"

as well as "where you're going." Preliminary findings, in the form of tables, graphs and especially in prose can prove valuable guides to planning further analyses. They can pinpoint gaps, contradictions and puzzles in the data; and they can help you know when to stop--either because an analytic scheme is "not working" or because a particular question has already been satisfactorily addressed.

Although the next few pages are devoted to clarifying a few basic terms, this section is by no means designed to substitute for a text on quantitative analysis.[1] We present, in fairly general terms, the overall design for the analysis of NSSP quantitative data and a brief discussion of certain statistical procedures implied in that design.

1. Variables

Throughout this manual we have referred glibly to "variables" in many contexts, assuming that the word conveys a general meaning to the reader. How long ago a student was licensed as an RN, what a faculty member's area of specialization is, whether an institution is publicly or privately supported--these are all variables in that they may vary from one case to another. In research terminology, a "variable" is an abstraction--a name the researcher gives to a collection of related categories. Each item of coded information, regardless of how simple or how complex the reality it represents, is given a name and defined as a single variable with a very specific meaning to which the coded categories relate.[2]

A data set consists of a total group of variables which, taken together, provide information appropriate and sufficient for addressing one or more research questions. A completed data set contains a specific number of cases, or units of analysis, and a specific number of variables. The NSSP compiles three data sets: student data, where the number of cases (students) is approximately 2,000; faculty data, where the number of cases (faculty members) is approximately 80; and program data, where the number of cases (programs) is six.

The number of variables contained in each data set is initially equal to the total number of coded items from all relevant research instruments--perhaps a thousand for students, less than a hundred

for faculty and even fewer for programs (e.g., region, financial support, year accredited, etc.). But, whereas the number of cases remains the same, the number of variables in all three data sets is subject to change throughout the study as new information is generated. Thus, although that number is specific at any given time, the final total is flexible until near the end of the analysis.

2. Levels of measurement

Each variable exists at one of four basic levels of measurement which helps to define appropriate statistical procedures for analysis. Most statistical texts contain a more complete discussion of this topic (see, for example, Siegel, 1956). The definitions which follow, however, provide the basic distinctions among the four types of variables:

1) Nominal, where a characteristic is simply named. Many of NSSP variables exist only at this level. Obvious examples include type of basic nursing program (for students), area of specialization (for faculty) or public vs. private support (for institutions). Even though numerical codes are used to designate categories, the numbers have no "value" other than to differentiate types.

2) Ordinal, where a characteristic is measured but only in terms of "more" or "less." Most of the many attitudinal measures in the NSSP data are at this level. The classic example is the Likert-type scale running from 1 ("strongly disagree") to 5 ("strongly agree"). The direction of the response is clear. However, the precise "amount" of agreement or disagreement is merely an approximation; you can assume that the 5's agree "more" than the 4's, but you don't know how much more.

3) Interval, where you can measure distance between points on the scale as well as direction of the scale, but the unit of measurement and the zero point is arbitrary. Generally speaking, standardized test scores fit into this category, such as those represented by the scales of the OPI. If interval variables are collapsed into categories, however, the collapsed version exists at the ordinal level, since it no longer accounts for all of the intervals separately.

4) Ratio, where you can not only measure distance "between" the categories, but where there is always a true zero point as its origin. Examples include age, weight, income, enrollment, etc.

Statistical procedures are designed for the various levels of measurement, the more powerful ones usually being appropriate only for interval or ratio variables. Their applicability for nominal and ordinal levels of measurement has been the subject of much statistical debate. (Labovitz, 1972, pp. 13-38)

Most NSSP variables are at the lower levels of measurement (nominal and ordinal), which could be viewed as a disadvantage in terms of quantitative analysis. On the other hand, our objectives do not involve us in formal hypothesis testing, and our number of cases, at least for the student samples, is comfortably large. We therefore select only those statistical techniques which serve our research purposes and which are not so "rigorous" in terms of measurement levels and/or sample size as to make them inappropriate for our data base.

3. The analytic design

In quantitative analysis, the researcher works with one data set at a time. The largest data set, as the analysis begins, is the one pertaining to students, which contains hundreds of variables about each individual in the entire student sample. These data are used to explore research questions which can be most directly and usefully addressed with data from and about the students themselves. Looking back at the overall research objectives (see page 16), we can extract a number of areas around which to organize the analysis of student data:

1) General characteristics, including

- general educational backgrounds
- types of pre-licensure training
- demographic attributes and lateral roles
- measures of academic potential
- measures of prior academic achievement
- measures of nursing knowledge/competence
- personality attributes

2) Attitudinal attributes, including

- general attitudes (values, priorities, etc.)
- attitudes toward education
- attitudes toward specific aspects of program attended
- attitudes toward nursing profession and nurses' role(s)
- attitudes toward self

3) Types or processes of student success, including

- academic achievement within program
- self-perceptions related to success
- intellectual growth, entry to graduation
- progress toward personal and/or professional goals

4) Types or processes of professional success, including

- . persistence in nursing profession
- . post-graduate placement
- . professional advancement
- . development of new professional perspectives
- . development of new nursing role definitions
- . development/maintenance of professional interests and activities

5) Student perceptions of the educational environment (NSEI)

The quantitative data set pertaining to faculty is more limited in scope, but it still contains many variables about each individual respondent. Analyses of these data will be organized around the exploration of the following areas relating to the faculty/administrator sample:

1) General characteristics, including

- . educational backgrounds
- . professional experience
- . some demographic attributes
- . personality attributes

2) Attitudinal attributes, including

- . attitudes toward nursing education
- . attitudes toward specific aspects of own program
- . attitudes toward nursing profession and nurses' role(s)
- . attitudes toward teaching

3) Patterns of interaction among students, faculty, administrators and health professionals

4) Faculty perceptions of the educational environment (NSEI)

The quantitative data set pertaining to "program" is originally quite small, emanating in its entirety from the six responses to the Program Survey (see pages 8 - 11). However, as both student and faculty data sets are completed and processed, quantitative data in aggregate form (i.e., summed and/or averaged by program) become available for analysis as "program" variables. In the final stages of analysis, then, this will be the largest and most comprehensive of the three data sets, including aggregate data pertaining to students and faculty from each of the six participating programs as well as the "original" variables pertaining to size, location, history, accreditation status, etc. The analysis of these data will provide the quantitative basis for

addressing the summary research questions of the NSSP: (1) to characterize the components and the outcomes of second step nursing education, and (2) to formulate a descriptive and analytic model of this curricular innovation.

Within the confines of this brief manual, we do not attempt to delineate each analytic procedure. In general, however, our design for the analysis of quantitative data incorporates the following steps:

1) For both faculty and student data, these steps are indicated.
   - Obtain a clear, descriptive, statistical summary of each sample in terms of all individual quantitative variables.
   - Review the outcomes of these preliminary analyses in terms of research questions; use cross tabulations and measures of association to explore relationships among variables.
   - Undertake correlational analyses for the further specification of relationships among ordinal and interval data.
   - Refine and reduce the number of variables by the creation of scales, indices and/or factors.

2) For student data only, we undertake these additional steps.
   - Define and list those variables for which measures of "change over time" are potentially available and relevant within the context of the research questions. Obtain individual change scores and/or cross-sectional change measures as appropriate, and test for level of significance in each case.
   - Using all outcomes from previous analyses (as well as concepts arising from qualitative analyses) create one or more composite "measures" of personal, academic and professional success, such that all students can be "scored" according to one or more levels of success.
   - Create sub-samples of "high" and "low" success; explore the statistical relationship of the success measures to other appropriate variables in the analytic data set.

3) Using only the completed program data set, the final quantitative analyses are designed to assess the degree to which the six programs differ from or are similar to one another with reference to the following:
   - Characteristics of students
   - Characteristics of faculty and administrators
   - Levels of success and/or achievement
   - Measures of change over time
   - Other emergent variables as appropriate

4. Statistical procedures

In this section, we present in roughly chronological order the basic statistical manipulations of data forecast for the quantitative analysis of the NSSP data sets. Although in this particular study, the latter stages of the analysis deal comparatively with "program data" (in order to characterize the Second Step as a new model of baccalaureate nursing education), our assumption is that the more immediate interest of most readers centers around the use of statistical methods in single-campus evaluations. The emphasis, therefore, is upon the quantitative analysis of data from students and faculty.

a. Descriptive statistics: frequencies, percentages and averages

As soon as the first batch of quantitative data is processed and ready for analysis (as, for example, when Entry Questionnaires are keypunched for Class 4), the analyst typically orders a set of descriptive statistics pertaining to that particular sample. These numbers do exactly what the term implies: they describe the sample in terms of whatever variables are included in that particular instrument. For a nominal variable such as "marital status," we merely learn how many and what percent of the sample said they were single, married, divorced, etc. For an interval of ratio variable such as "number of months work experience," some type of an "average" response is useful in describing the sample as a whole.

For a reasonably large sample, an arithmetic mean and standard deviation usually serve this descriptive purpose, but you can also look for the median and modal responses. The median is often preferable in interval level data, especially if a few extreme cases occur which may throw the arithmetic mean off from the central tendency of the total group, since the mean is greatly influenced by extreme cases. One also likes to know the shape of the curve made by the frequencies of responses. Is it a normal bell-shaped curve, or is it asymmetrical with some cases piling up on one side or the other? Or is it bimodal having two (or more) high points? Knowing the shape of the distribution curve is fundamental for the use of other statistical methods, since the most efficient methods make specific assumptions about the nature of the distribution. It is common to assume a normal bell-shaped curve, but this may not be the

case with your empirical data.

b. Cross tabulations and measures of association

Descriptive statistics are often more interesting and informative when presented in a comparative format. In the NSSP, for example, we are interested in learning about "all entrants," but we are equally interested in learning about entrants in each of the six participating programs separately. The following hypothetical table, for instance, indicates that "most" (64%) entering students attend on a part-time basis, but that this is not at all true for Program "C."

Student Enrollment Status, by Program

Student Enrollment Status	Participating Program A	B	C	D	E	F	All Programs
Full-time	30%	50%	70%	20%	35%	10%	36%
Part-time	70%	50%	30%	80%	65%	90%	64%
N =	400	80	350	250	200	275	1,555

The above table is called a cross tabulation or contingency table, and is nothing more than the joint frequency distributions between cases on two variables: program ID and student enrollment status. Cross tabulations are the most common format for presenting and analyzing relationships in social science research.

Sometimes an association between variables can be noted simply by viewing ("eyeballing") the percentage distributions, but these distributions can also be analyzed in order to determine whether or not the variables are statistically independent. Perhaps the most common statistical test, and one of the relatively few that are appropriate for nominal variables, is that of chi square. This statistic requires careful interpretation; it indicates only the probability of an association having occurred by chance. Standing alone, it indicates neither the strength of the association nor the correlation between the two variables.

A number of "measures of association" can serve to further summarize and clarify the information contained in cross tabulations; three of these are lambda, the uncertainty coefficient, and gamma, all discussed in the SPSS Manual. Such measures can be used to describe

the degree to which the values on one variable tend to predict or vary with the values on the other.

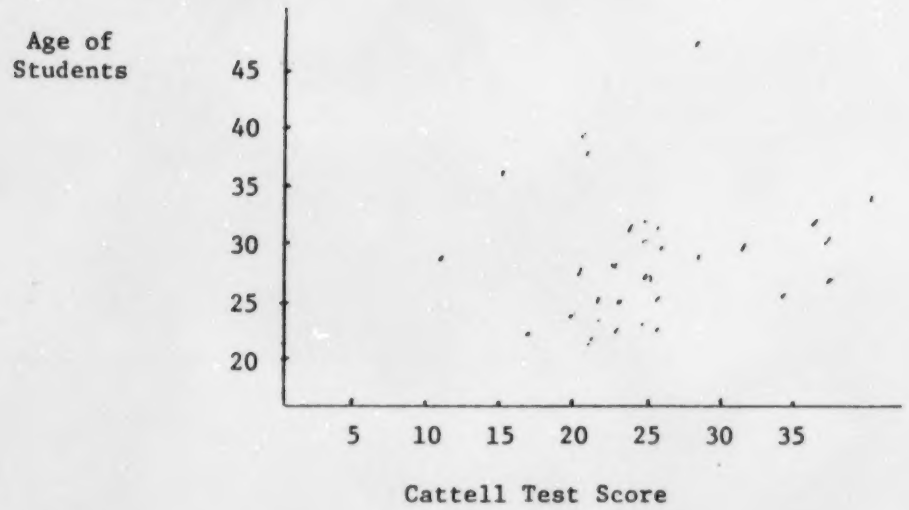
Gamma is particularly useful for ordinal data. It indicates (1) the strength of the relationship and (2) its direction (i.e., whether the variables are positively or negatively associated with one another). This measure is more thoroughly discussed in several references. (See, for example, Mueller, Schuessler and Costner, 1970.)

Cross tabulations, in conjunction with a variety of statistical procedures which further clarify the relationships between two (or more) variables, are used not only as a means of describing segments of the total sample at the beginning of the analysis, but also as a way of examining relationships between different elements in the data throughout the analysis.

c. Correlation analysis

A correlation yields a single number, called a coefficient, which summarizes the relationship between two variables, provided that the variables exist at or beyond the ordinal level of measurement. Like the measures of association discussed in the previous section, they indicate both the strength and the direction of relationships between variables.

Although most of the NSSP data exist "below" the interval level of measurement, some (such as age at entry, test scores, etc.) are clearly interval and/or ratio level measures. To see the detail in the relationship of two interval level variables, one uses a scattergram. This is a graph of data points, where one variable defines the horizontal axis and the other the vertical axis. Looking at the scattergram is the first step in the analysis of two interval variables. A fairly realistic but hypothetical illustration appears on the following page.



By viewing a scattergram, one can see the shape of the relationship. Is it primarily linear, curvilinear or random? Is the "swarm" roughly the same thickness throughout the scale? Are there a few cases that stand out by themselves? The statistical techniques of regression analysis, which seek to fit the "best" line or curve to the data, and Pearson's product moment correlation (r), which measures the "goodness of fit" of the regression line, make certain assumptions about the "shape" of the data which can only be observed by looking at a scattergram.

Correlation analysis is often used instead of working directly with cross tabulations, especially when one or both variables have a large number of categories, making the cross tabulations themselves unwieldly and difficult to interpret. Two common correlation coefficients for use with ordinal data are Spearman's rho and Kendall's tau.

d. Creating scales and indices

These two words are used interchangeably within the social science literature to refer to techniques of combining two or more measurements to form a single score which can then be computed for each case. On page 89, for instance, we call for a quantitative measure of "progress toward personal goals" and of "progress toward professional goals." Since many individual items bear upon these areas while no single item measures it directly, one solution is to create a composite measure which makes use of the relevant data available in order to assess

such progress.

The first step in creating a scale is to make certain that the items theoretically fit together so that the scale has meaning. For example, one question on the Entry Questionnaire (see page 32) asks students to rate their competence in six different aspects of nursing knowledge and ability. Theoretically, the summed total of a respondent's six sub-scores might well represent that student's self-evaluation of overall competence in the nursing field. The total score can then be used as a variable as well as each item score.

Attitudinal scales should fit together both theoretically and statistically. Another question on the Entry Questionnaire (see page 31) asks students their interest in various activities related to nursing. Theoretically one might argue that all eight items measure some common concept of professional activism. The simplest way to confirm or refute that argument is by correlation analysis.[3] All variables included in a single scale should correlate with all the others at a reasonably high level. Scales or indices are means of summarizing quantitative data into concepts that are both theoretically coherent and statistically sound.

e. Dealing with change

One of our basic research aims is to discern the impact of second step programs on the students. Central to this was the inclusion of a longitudinal sample as part of the overall design. Many questions and whole tests are given to the same student at entry and again at graduation so that individual change can be computed and measured. Individual change scores are computed by subtracting the value at time 2 from the value at time 1. These change scores become new variables in the data set and can be used as any other variable. For interval data such as OPI scales or NLN test scores, a t-test determines the significance of the measured change. The Wilcoxon matched pairs test is a similar statistical technique for ordinal variables (Siegel, 1956, pages 75-83).

These same techniques are also used to determine the significance of cross-sectional change (e.g., "all entrants" vs. "all

graduates") or to compare various sub-samples in terms of change over time (e.g., high achievers vs. low achievers).

f. Dealing with achievement and "success"

In the final stages of the quantitative analysis of student data, utilizing a completed data set and outcomes from all previous analyses, the NSSP design takes on the problem of measuring "types and processes of student and professional success." We begin by assuming that success, like many theoretical concepts, is inherently multi-dimensional, thus, that it can be defined from several different perspectives and therefore measured by means of several different kinds of data.

The basic statistical techniques used in this process are those associated with creating scales and indices. That is, we create a composite measure which hangs together both theoretically and statistically. But rather than aiming for one single measure, we assume from the beginning that more than one index will be found to satisfy both criteria.

Regardless of substantive outcomes--i.e., the precise definitions and indicators which eventually serve to best represent these types and processes of success in second step nursing programs--the procedural outcomes can be outlined.

The success measures themselves are defined as new ordinal variables. Since each is composed of a separate group of "old" variables on which student data have already been collected and processed, a program is devised to "score" each case in the student data set. If three measures of success are constructed to represent three types of success, every student is thereby assigned three new scores, each representing that individual's level of achievement according to the three new measures.[4]

The last set of pre-planned statistical procedures (although every quantitative analyst knows that others will occur in the course of the actual analysis) is designed to examine the relationship of the various dimensions of success to other variables in the analytic data set(s). By creating student sub-samples composed of the highest

and lowest scorers on each dimension, the analyst gains access to a greater variety of explorations and insights than would be available by correlation analysis alone. The basic strategy, then, is to "describe" the resulting sub-samples as informatively as possible--not only who they are, but what they have experienced as students in a second step curriculum. The intent of this final analytic phase is not so much to isolate "predictors" of success as it is to clarify our understanding of the educational processes which appear to enhance or to minimize the achievement of those qualities that combine to produce one or another of our success "types."

The delineation of sub-samples, then, permits a new series of statistical procedures--from simple descriptive statistics through correlational analyses--planned around this explanatory focus. It also necessitates a fruitful synthesis of these quantitative methods with the outcomes of qualitative strategies, and a disciplined interpretation of the findings of each.

C. Validity and Reliability

According to one authority, "a measurement procedure is considered valid to the extent to which its scores reflect true differences among individuals, groups or situations in the characteristic which it seeks to measure ... (and) is reliable to the extent that independent applications of it yield consistent results." (Selltiz, 1976, page 197) These are important and legitimate concerns, and we strongly urge that the evaluator who is unfamiliar with the theoretical bases and the broad applicability of these concepts take the time to become familiar with them.[5] For the purposes of this manual, however, their treatment is tied rather specifically to their relevance in the NSSP research design. Since that design combines both qualitative and quantitative strategies, each of which takes a somewhat different approach to these troublesome issues, we limit this discussion to defining the areas of concern rather than detailing procedures for addressing them.

1. Observation and conceptual analysis

In the qualitative analysis which relies upon the grounded

theory approach (Glaser and Strauss, 1967; Becker, 1958), statistical tests for validity and reliability play no significant role. The qualitative analyst working in this mode, via direct observation and conceptual analysis, is not usually preoccupied with establishing the absolute "truth" of the model s/he constructs, but rather with establishing its credibility and usefulness in explaining a social phenomenon. Self-imposed rules governing the conduct of the analysis must provide some assurance that the inferences which are drawn from the evidence actually correspond to an external and consistent reality.

One useful guide is to "stay close to the data." To be worth their salt, findings should say "more" than the data from which they arise; but their relationship to that empirical base must be clear, both in the mind of the analyst and to the audience s/he addresses.

Second, and closely related, give evidence. The researcher works without the restrictions (and the benefits) of statistical proofs and assumptions of normal distributions. The significance of particular clusters of facts and the meanings assigned to those facts rests not upon a level of probability, but rather upon the perception and judgment of the researcher. This freedom is the essence and the strength of qualitative analysis; factors may be "important" and highly influential without being "typical," and explaining the divergence is often as revealing as accounting for a central tendency. A rich qualitative data base lends itself well to uncovering the unexpected and probing the underlying meanings behind conventional wisdom. At the same time, it imposes the burden of proof directly upon the researcher who cannot simply "compute" a level of significance, but who must build a convincing case for each inference drawn from the evidence at hand.

Third, be skeptical of your own findings. Much of the strategy of grounded theory research is built around the process of validating one's ideas and concepts with reference to new evidence, new experience, new perceptions. The constant back-and-forth exchange between "questioning" and "answering" forms a strong support for both the consistency of the observations and the conceptual validity of the elements that survive.

Finally, perhaps the best "proof" is to be found in the

general coherence of the findings themselves. Do the concepts hang together and make sense? Can you explicate a kind of logical consistency from one to the next? Do they "fit" with everything you know about (in this case) second step nursing programs?

Having said all that, we must concede that "pure" grounded theory plays only a small part in the NSSP methodology. Although direct observation and document analysis are techniques that contribute importantly to both the evidence we accumulate and the outcomes we hope to achieve, the bulk of our data is derived from the rather extensive battery of instruments described in Chapter III.

2. Data-collection instruments

To establish the validity and reliability of either a complete instrument or a single item requires repeated usage and/or a relatively large sample of respondents. One reason program evaluators lean toward the use of standardized instruments is because, with a reputable published instrument, that work has in all probability been done and is cited in the accompanying manuals for reference. Most single program evaluations have neither sufficient time nor sufficient sample size to include a thorough statistical assessment of their data collection tools.

The NSSP research effort inhabits a sort of middle ground in this regard. Several key data-collection tools are published instruments with a backlog of usage and literature which serves to establish an acceptable degree of validity and reliability.[6] Our project-designed instruments, however, are in varying stages of "maturity," and deserve some further comment.[7]

a. Interview guides

Three are interview guides: one for student group discussions, one for individual faculty members and one for administrators. Although interviewing is often used as a method of collecting information from individuals whose responses will then serve to represent the population from which the interview sample is drawn, the NSSP interviews serve a quite different purpose. Student discussants, although randomly selected, do not provide "individual" data; some may respond to one question

and some to another, and transcripts of the discussions will not identify the speaker. As for faculty interviews, non-random sampling combined with very small numbers of respondents preclude the use of these data as representative. And administrators, even though they constitute the sum total of department heads in our six-program sample, do not furnish enough responses to permit quantitative handling beyond the level of simple description.

The primary function of these tools, then, is to provide a rich vein of data for qualitative analysis; thus, although variables pertaining to "program" (rather than to persons) may emerge from such analysis, the instruments are not designed to "measure" but rather to generate insights which help to clarify and explain the phenomenon under study. Under such circumstances, instrument reliability in the sense of consistent measurement from one application to the next has little meaning or import.

The validity of the raw data, on the other hand, is a prime concern and is aided by two built-in safeguards: (1) the presence of the researcher whose task it is to make certain that the questions are understood, that the responses are relevant, and that the respondent(s) are, insofar as it is possible to judge, providing information that reflects their "true" opinions and reactions; and (2) the use of verbatim taped transcripts of the discussion for purposes of analysis, alleviating any concerns about the loss of certain crucial aspects of a response due to the incompleteness or subjectivity of the interviewers' notes.

b. Questionnaires

A measurement procedure, as defined by Selltiz (1976), consists of a technique for collecting data plus a set of rules for using these data. In the NSSP project-designed questionnaires, specific items represent the basic techniques, and the codebooks contain the rules governing usage. Each variable entered into each data set is, in that sense, a measurement procedure and is therefore open to question concerning its validity, or the extent to which it provides a "true" measure of the characteristic, and its reliability or the extent to which it produces consistent results.

In some instances, qualitative analysis produces

quantitative variables, as when codes are derived from open-end questionnaire items for inclusion in a quantitative data set. We may assume that whatever the respondent writes is "true" or valid, in that respondents are free to answer in any way they choose. But in the process of quantification, words and phrases are transformed into a set of coding categories. How successfully that process is carried out invariably influences the construct validity[8] of the coded item.

Another important concern is, of course, inter-coder reliability. Since the way in which each case is coded depends not only upon what the respondent wrote or said, but also upon how the coder interprets and classifies that response, a major threat to the reliability of such data rests with the differences in perception amongst those who do the coding. There are several ways of coping with this problem:

1) The same person can do <u>all</u> the coding, making careful and complete notes as to how each category is being interpreted in the process.

2) Two or more persons can code all qualitative materials independently, and be required to resolve discrepancies by discussion and concensus.

3) Two or more persons can divide the qualitative coding by random assignment, each working with a certain proportion of the materials to be coded. In this method an additional variable becomes "coder"; each coder "signs" his or her work, so that reliability ratings between coders can be statistically obtained.

None of these methods are guaranteed to eliminate the problem, but they can reduce it considerably. When statistical tests still indicate low reliability coefficients for certain qualitatively coded variables in spite of such precautions, it may be necessary either to start from scratch and derive new coding categories or to define the existing classification scheme more explicitly. In either case, however, being aware of the problem is half the battle.

The large majority of the variables in the student data set, however, are not derived from qualitative data, but are taken directly from pre-coded questionnaire items. In these cases, the rules governing usage are largely incorporated into the data collecting tool itself. Inter-coder reliability, then, is in a sense absorbed into the

more general definition of item reliability, since respondents essentially "code" themselves.

All of the NSSP project-designed instruments are, as of this writing, in current use for the first time as completed data-collection tools, although they were developed from a similar set of tools employed in the earlier Demonstration Study. Specific items with apparent problems in validity and reliability were intentionally omitted from the NSSP instruments. Nevertheless, our various questionnaires contain several hundred untested items.

Faced with the sheer number of measures incorporated into the NSSP data sets, it is both unnecessary and unrealistic to set about establishing the construct validity of each and every item. Those efforts are best reserved for the more significant and central concepts, such as, for instance, the dimensions of success. More important for the potential user of these instruments in their current form, however, is the fact that the sample structure in the current study is sufficient in size and design to permit the establishment of levels of reliability by means of accepted statistical procedures.[9] These analyses are to be undertaken in the second and third years of the NSSP research, and results will be included in the final report to be released in 1981.

D. Synthesis and Interpretation

During the final phase of the analysis, the major task is one of achieving a productive and workable synthesis between our complementary and parallel research strategies, qualitative and quantitative, such that we arrive at not two but one coherent, theoretically sound and empirically demonstrable explanation of the second step phenomenon.

The qualitative segment begins with a virtual universe of collected observations of second step nursing programs in action--verbal commentary in the form of questionnaire responses, interviews, discussions, documents, etc.--and distills therefrom a "model" of this fast-growing form of baccalaureate preparation. The model is an abstract but valid description of the phenomenon itself; it is made up of explanatory concepts derived from a consideration of all the available evidence collected and analyzed--concepts which "fit together" to create a "whole" picture

of a dynamic educational process. The model is grounded in empirical evidence, but rather than merely reflecting and summarizing that evidence, it creates a theoretical framework capable of accommodating and accounting for all the isolated facts and observations which have been collected and considered.

The quantitative segment begins with three data sets, all of which are staggeringly comprehensive. The data pertain to students, to faculty/administrators and to program; taken together, they contain many hundreds of discrete variables, each representing a single retrievable bit of coded information about the students, the faculty members or the programs in the sample. Analysis of the student data set provides a very complete set of descriptors of the student population; the faculty/administrator data set serves to describe those populations, albeit in somewhat less detail; and the program data set includes aggregate data pertaining to all populations as well as additional descriptors of the program as an organizational entity. The analysis of each data set is undertaken separately and produces an objective and accurate description of each sample. A preliminary intent is to discern "typical" characteristics, attitudes and behaviors. More complex analyses indicate significant relationships among variables; reveal unifying factors, concepts and dimensions which function to connect and add meaning to isolated findings; and provide statistical rationales for inferences about the larger population of second step students, faculties and programs.

Since that phase of the analysis which concerns itself with synthesis and interpretation is still in the future as of this writing, we include no description of the step-by-step process by which this goal will be accomplished. We have, however, given serious thought to the importance of achieving such a synthesis, and have evolved four general guidelines for steering ourselves in that direction.

First, simply allow enough time for bringing the two sets of findings together. Both parallel analyses should be brought to a stage of near completion as early in the final year as possible. Preliminary findings and emerging concepts from each aspect, then, are permitted enough "fermentation" time to develop a cohesive sense of wholeness prior to the statement of final conclusions.

Second, don't work in a vacuum. Especially in the constantly changing field of nursing education, developments in the world outside the research office surely need to be taken into account in interpreting findings and refining ideas of the processes that occur in contemporary educational practice. Political events of the day, for instance, can be counted on to influence the actions and attitudes of students, faculties and organizations. Equally important, maintain contact and current knowledge of other research findings; these may stimulate new perspectives on the data at hand, and may serve the broader research function of "building" upon previously established frameworks, thus enhancing the usefulness of both efforts.

Third, summarize constantly. Especially in a design incorporating large bodies of information arising from relatively "separate" sources of data, it is important for all members of the research team to be able to maintain contact with what "the other side" is learning. By producing working drafts and data summaries throughout the conduct of the study, the goal of synthesis can be begun well ahead of the final crush.

Finally, and closely related, communicate. The working drafts and data summaries are only a partial approach. During the final analytic phase, substantive seminars can be scheduled for the expressed purpose of melding the two sets of findings, each focused upon specific areas of research interest. Both qualitative and quantitative findings pertaining to those areas can be presented, discussed, and the linkages forged and articulated.

Notes

1. Readers seeking a more complete and general treatment of this broad topic have a wide choice of such texts available. See, for example, Selltiz et al. (1976) and/or Siegel (1956).

2. For an example of a single variable which represents a more complex idea, consider what we call "Impulse Expression, Time 1" or "IE 1." This variable has nothing to do with anyone's personal judgment of that person's impulsivity; it is a scale score from a standardized personality inventory administered to students at time of enty. Coded categories run from 0 (very low) through 59 (very high). Standing alone, the raw score tells us very little; but in conjunction with other variables, or with reference to the scores of other student samples, IE 1 can furnish a valuable perspective on Second Step entrants that would be difficult to obtain by any other means.

3. It might be mentioned that the procedures we outline here are merely the broad outlines of statistical scaling procedures. In instrument construction, where the object is to produce a valid and reliable scale for future use in attitude measurement, the process is much more painstaking. Such scaling often begins with factor analyzing a huge pool of separate items, and continues through to thoroughly testing the finished scale for test-retest reliability. For a good discussion of scaling and indexing, the reader is referred to Selltiz et al. (1976), pages 400-431.

4. In carrying out these scoring procedures, cases with missing data pose problems. Our procedure is to score only those cases with good data on more than half of the component variables, and to consider the remaining cases to be "missing data" with reference to that particular measure.

5. A good place to start is Chapter 6 of Research Methods in Social Relations by Selltiz et al., 1976. Now in its third edition, this readable text devotes some forty pages to "General Problems of Measurement" written from a positivist orientation. Even this lucid exposition of the validity-reliability continuum does not treat the tests themselves in any statistical detail, but further references are numerous and current.

6. The OPI, NLN Achievement Tests, the CFI, and the NSEI all fit this definition.

7. The EADS (see pages 29-30) is not considered problematic in these respects as it is not administered to "respondents" but filled out by research associates with the resulting data entered into the computer only after careful editing for accuracy by the data analyst.

(Continued to next page.)

Notes for Chapter V Continued:

8. Validity is an umbrella term encompassing many variations and "types," each of which may be established by differing procedures. The definitive work on construct validity was written in the mid-Fifties (Cronbach and Meehl, 1955). The term implies that what the researcher is attempting to measure is an idea (thus, a mental construct) about an individual--a characteristic or trait that the individual possesses or does not possess--rather than merely a single behavior. Most global coding is done at this level of abstraction. In testing for construct validity, then, we ask ourselves how we would expect persons classified in a particular way to behave or "score" on other measures that are theoretically related to the variable we have created (i.e., the "construct").

9. Cronbach's Alpha or Split-half coefficients can be computed for any scales or composite indices that are created to test their internal consistency.

CHAPTER VI

THE FINAL REPORT

Imagine this hypothetical situation: the data are in, the analyses are complete and you have a perfectly lucid understanding of what it all means. The hard part is over, right? Wrong! Now you face an entirely new and different problem: explaining it to somebody else.

Reporting the outcomes of a research effort can take any of a wide variety of forms, ranging from a one-page mimeographed hand-out to a best seller. But since educational research is often externally funded, probably the most prevalent form, at least the first time around, is that of the Final Report--a sometimes unwieldy document submitted to the funding agency.

If there is a folklore of research, it might well reflect an uneasy feeling shared by many writers of these documents that the reports are more often filed than actually read and pondered. Nonetheless, they must be written; if well done, not only do they furnish a comprehensive record of what the research has accomplished but they also serve as a rich quarry of information from which smaller, more digestible and publishable articles can be carved and polished.

A. Planning

The single most important thing to say about planning is simply to do it. Lack of planning can result in, among other things, a financial crisis; it is usually permissable to delay the completion of the report, but funding for the extension must come from the budget for the final year, which may well be depleted at the end of the normal funding period.

The first step in planning the work is to obtain the proper guidelines--a step which can be taken quite early in the final year of the research. Like most externally funded program evaluations, the NSSP owes its existence to federal support; and like most very large organizations, governmental agencies tend to be slow in responding to individual requests. Each agency has its own specific forms and reporting requirements, and these may change in some ways from one year to the next. It's

fairly safe to assume, however, that they won't change drastically. If current guidelines are not available early in the year, a copy of those issued the previous year can be equally helpful.

A review of the form in which the report is to be filed enables much of the work to be assigned in whole sections. Each person who contributes to the final product knows well in advance the general content and purpose of his or her own section and is accountable for producing not merely "findings," but a presentation of findings that will be an appropriate segment of the document to be constructed. Thus, activities that necessarily precede the actual writing are known and can be incorporated into that staff member's normal workload, rather than coming as an "extra" task to be undertaken during the final hectic weeks of the project.

Because the report must not only be "written," but also typed, edited, corrected and possibly re-typed, length becomes an important consideration. Any research report can be planned in advance to cover a fairly specific number of pages. A writer aiming for a twenty-page report simply includes more detail than the writer who is asked to describe the same study in two pages. After the guidelines and forms are in hand and the assignments accepted, each contributor is able to forecast the approximate length of his or her section, including visual presentation of supporting data (tables, graphs, appendices, etc.) as well as text.

The final steps, then, are setting the deadlines and planning the "product." As with earlier phases of the project, the best tactic is to work backwards from the official due date set by the funding agency. In doing so, refer to a copy of your academic calendar that tells you which days will be essentially non-productive, (such as weekends, holidays and other "prior commitments" that will affect the completion of the report. With these restrictions in mind, ask yourself the following questions, and answer them realistically:

1) When should the report be postmarked? (Do you need to allow two days for the campus mail service to function?)

2) How many people have to "okay" it before it can go off campus? (Will they be in their offices that week? Will they sign it without reading

it? Will they require reading time and perhaps insist on changes?)

3) How many copies do you need? (Will it be going to a duplicating service; if so, how much lead time do they require? Will they collate and bind or staple?)

4) After final typing, who proofs the finished product for details and typos? (How long will that, and making the corrections, take?)

5) Who takes charge of deciding all the questions of format and style with regard to footnotes, references, layout, table of contents, appendices, etc.?

6) Who will do the final typing? (How long will that take? Is that person's schedule "cleared" from other time-consuming duties for that period? Have you allowed extra time for typing tables, drawing graphs, etc.?)

7) Before final typing, who will assemble the various sections and edit for substance: accuracy, consistency, literacy and flow? (How long will that take? How much time will be required for re-write?)

8) What shape should the "contributions" be in before they go to the "substantive" editor? (Are all the drafts typed with room for corrections, re-wording, etc.?)

After you have answered all these questions conservatively, you may be as much as several weeks "back" into the calendar depending, of course, on the total number of pages you have projected. Pinpoint the date and plan to have everyone's well-considered thoughts on paper by that time.

B. Writing

Getting those thoughts on paper represents for some researchers the most satisfying part of the research process--a chance to present the results of arduous investigation to a waiting world. For others, however, it's a traumatic time, filled with crumpled notes, half-written paragraphs, sudden doubts about the significance of what you have to say and how best to say it and (most witheringly) who cares? Without any hard evidence on the subject, our guess is that the latter outnumber the former by about ten to one.

As with any writing task, the most important guide is to have a clear mental picture of your intended audience. Write "to" a reader rather than into some ill-defined void. Just as in conversation, what you say and how it is received will depend in large part upon who is listening--not only what they want to find out, but how much they already know about your subject and, not incidentally, how much interest they have in it.

In the case of a final report to a funding agency, all those concerns are relatively easily answered. You can assume that your reader is knowledgeable; if your report concerns the evaluation of a nursing curriculum, reader(s) in Washington or elsewhere may have degrees both in nursing and in educational research and will probably have read dozens of similar reports. Nursing research terminology will be understood; it can be used without needless explanations; on the other hand, it must be used accurately. You can also assume that they have read (or have access to) your project's prior reports and earlier findings; these can be paraphrased and cited. Finally, you can assume that their interest in your project is basically "professional." Reading your report is one of their professional responsibilities, not something they have picked up because it looked interesting. They will probably appreciate conciseness and clarity more than poetic prose.

As for what they are most interested in learning from your report, the best clues are contained in the "suggested format." It's true that many other formats are equally acceptable, but writing and rewriting time can be considerably reduced by attending to those clues before you begin. A sample copy of the suggestions from one federal agency appears on the following page. It must be stressed that such guidelines differ in many important ways from one organization to another; but viewing this one as a concrete example may be instructive.

Only two short lines--D and E--refer in somewhat cursory fashion to everything that has been learned in the course of the project. In the NSSP final report, were we following this particular outline, those two sections, covering both methodology and findings, could account for well over a hundred pages of text and tables. But although they represent the bulk of the report from the researcher's perspective, their importance to

FINAL PROGRAM PERFORMANCE REPORT

Include the following identifying information in the heading.

1. Grant number indicated on "notice of Grant Award."
2. Title of the project.
3. Name of grantee institution.
4. Name of the project director. (If there has been a change of project directors, include names and dates for each person.)
5. Total number of years for which the project was approved.
6. Time period covered by the Final Report.

The outline below indicates the kinds of information which should be included in the Final Report. Review of these reports is assisted materially when statements are arranged under a uniform pattern of captions. Alternate arrangements can be followed if more suitable to the project being reported.

A. Problem or situation with which the project dealt.

B. Anticipated outcomes prior to initiation of the project.

C. Changes in initially approved plan and reasons for them.

D. Outcomes of the project and how determined.

E. Factors that influenced these outcomes.

F. Descriptions of effects of the project on the nursing education program.

G. Brief summary of what this project has meant to the nursing program(s) involved. Objective and subjective evidence could be included.

H. Plans for continuing the activities related to the project (if appropriate) or plans for implementing the project findings.

I. Enrollment in the nursing program. (If applicant is a school of nursing.)

At the start of the project period:

At the end of the project period:

PLEASE SUBMIT THE ORIGINAL AND ONE COPY ONLY

SAMPLE

the immediate audience need not be overestimated.

Equally important, from the perspective of the funding agency, are the answers to another set of questions: What was the purpose of the project in the first place? What did you set out to accomplish? Did you change your mind mid-stream, and if so, why? Did you manage to do what you said you would? What difference did it make? What impact has your work had on your own program, your institution and/or the nursing profession? Underlying all these questions is a rather basic query that is near and dear to the heart of the funding agency: Were our dollars well-spent? And perhaps underlying that, "What evidence can we show to those whose funds we have expended (whether taxpayer or corporation)?"

The final report itself should constitute a direct and accurate response to those queries, hopefully in the affirmative. Maintaining that perspective can assist the writer facing a deadline in two important ways. First, the actual findings themselves, especially their intracacies and subtleties, are probably more important to the writer than to this particular audience. That does not imply that they need be slighted; rather, that their inclusion is primarily for the purpose of documenting what you have learned along with supporting data in sufficient detail for the writer's own use as a future reference. Second, the impact of the findings upon the world that lies outside the research office is probably more important to the audience than to the writer--at least at this particular time. The old adage about "not being able to see the forest for the trees" is usually pretty descriptive of a researcher struggling to compress two or three years of work into ten or fifteen pages of prose. Sometimes it's helpful to keep an open file during the course of the research into which you can drop notes, as they occur to you, about the effects of the project as a whole--any spin-off which has benefited your program, its students and faculty, the institution(s), the community, the profession, etc.

Keeping those considerations firmly in place, and attending at the same time to requirements for accuracy and reasonable brevity, contributing authors individually work out their own solutions to the problem of writing their respective sections of the report. The drafts that are produced are compiled and readied for the blue pencil of the editor(s).

C. Editing

Much of what needs to be said about editing is nothing more than a competent secretary knows from experience. But it warrants at least a brief mention here to emphasize the importance of the editing process in forging that link between "writing" and "distribution."

We are assuming that most final reports emanating from a research project are intended to serve more than one purpose. The immediate need is for a concise and accurate report to the funding agency; a second purpose is to serve as a source of information from which smaller segments may be drawn for presentation in other forms (e.g., journal articles, feedback to participating students, faculty, etc.); a third possibility is that the report as a whole may be circulated to certain "significant others" --those you have reason to believe would be interested in the outcomes of the project. The editing task(s) becomes increasingly demanding as you increase the scope of the intended audience.

First-level editing takes place as the sections of the opus are being written. That is, the contributors should be convinced that they have said all they have to say on the subject, as well as they are able to say it. They should not be embarrassed to send it off as is, either for critique by colleagues or for publication. First level editing, then, consists of each author, (in consultation with one another as desired) going over the section to be submitted, checking for accuracy, completeness, coherence, and general literacy.

At the second level, we put all materials in the hands of a "substantive editor"--someone thoroughly familiar with the research who will review the report as a whole. This person critiques the completed draft for things like "gaps" in content, redundancy, logical consistency, flow, literacy and clarity. Sections requiring substantial revisions are handed back to the authors, and re-writes should take place promptly. Contributing authors must be available for comment during this time and willing to work with the substantive editor or forever hold their peace. The manuscript is then ready for final typing; all layout decisions regarding "style" (footnotes, references, general format, etc.) are implemented at this point.

After final typing, the third-level editing is essentially what is more often referred to as "proofing," or editing for detail. The "detail editor" is preferably someone who has never seen the report before and who therefore sees it with the critical eye of an outsider. This person reads every word and checks every reference--a process that is almost psychologically impossible for those who have already worked with the manuscript ad nauseum. Each page is corrected as necessary, and the report is made ready for duplication.

D. Dissemination: Finding the intended audience

The end of the research process is sometimes known, in the inner circle, as "the big double D"--standing for Dissemination and Development. Quite frankly, it's the toughest part of the whole process. Doing the design is fun; collecting the data is a chore; running the analysis is a challenge; interpreting and writing up the results is exciting; but then getting anyone else besides your fellow researchers interested in the possible significance of the findings--to say nothing of actually understanding and using them--well, that's another whole kettle of fish, and sometimes very cold fish at that.

The immediate audience--the funding agency--is easy to find, and the reader's interest is assured. But let us assume that you wish to increase the report's readership beyond those narrow boundaries. In the case of the NSSP, with three years of effort behind us, members of the research team would find disheartening the prospect of having research outcomes do nothing but collect dust on a shelf somewhere in Washington, D.C. To whom are your findings most useful? To whom are they inherently interesting? To whom should they be interesting?

It pays to advertise. After answering the above questions to your own satisfaction, you will have identified a potential readership for your report. Don't wait for them to come to you with a request; suggest that line of action to them directly, or simply furnish them with a copy of the report accompanied by a letter explaining its relevance to their own interests. This step, incidentally, influences and is influenced by some prior budgeting and scheduling decisions--specifically, those concerning the number of copies to be printed. How many complimentary copies

can your budget cover? What part of your readership can reasonably be asked to defray the cost of printing and distribution, and what would such a charge be?

In Chapter IV, we discussed "feedback": the provision of preliminary findings to participants during the course of the project. These people are the core of your outside audience; some educational researchers hold that they are the only persons upon whom the impact of a research project is felt directly and through whom the results of that process are therefore mediated. Although all participants need not be provided with a copy of the final report, they should by all means be informed that such a report is available, and how they may obtain a copy.

In program evaluation, whether focused upon a single campus or, as in the case of the NSSP, involving several institutions, the faculty and administrative personnel of the institution(s) from which your sample is drawn constitute a particularly significant audience to whom findings, conclusions and/or recommendations are addressed. It is through these persons that the implications of those findings may influence policy and decision-making; this is the channel, therefore, through which an objective assessment of an educational program can actually benefit the program. The use of evaluation findings in this "formative" sense benefits the institution not merely by pointing out a program's strengths and weaknesses, but also by suggesting pathways toward improvement and toward the beneficial continuation of such an assessment process. To achieve these valid goals of evaluation research, it is often necessary to do more than simply make the final report available. "Dissemination and development," in order to be fully effective, must often take the form of personal interaction with various individuals and groups--explaining the findings along with their limitations and import, and inviting questions and discussion.

In sum, it is not enough simply to "do" the research. The researcher bears also a responsibility to put the laboriously acquired information into the hands and minds of those by whom it can be effectively used such that the program, the institution and the profession stand a realistic chance of benefiting from the new knowledge you have produced.

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PROSPECTUS

Title: Evaluating Nursing Education: A Research Manual

1. Description of the Book

a. Type of book

Reference; supplemental text

b. Subject matter and scope of book

All aspects of comprehensive program evaluation. Content and samples of research materials are most directly applicable to the evaluation of upper-division baccalaureate nursing programs, but are adaptable to the evaluation of lower-division as well as graduate programs.

c. Major theme or approach of the book.

Case study. This approach is based upon the longitudinal and comparative multi-campus evaluation currently being conducted by the National Second Step Project at Sonoma State University. Emphasis is upon the application of principles of evaluation research to specific problems and circumstances which typically surround and sometimes overwhelm program evaluators.

The conceptual framework stresses the dynamic interdependence of variables affecting student characteristics, educational patterns and structures, and the definition and assessment of goal achievement. The appropriate and complementary use of both quantitative and qualitative research strategies is a recurrent theme throughout the manual.

This case study approach, consistently citing numerous examples of sound and workable research procedures, provides the basic unifying element. Within that illustrative framework, sample materials and theoretical considerations are organized and presented according to the step-by-step

chronology of the research process, from posing realistic and attainable objectives through to producing the final report.

d. Level of intended audience

Professionals and/or students engaged in research activities. Single-campus program evaluation is typically undertaken by committees of nursing educators and/or students; these persons constitute the book's primary audience. (Such committees, charged with the continual initiation, development, improvement and assessment of learning experiences, are probably present in some 1,400 nursing programs throughout the nation.) A secondary and often overlapping audience consists of the growing number of directors and staff members of externally funded program evaluation, often appended to nursing departments especially in the formative years of self-study and accreditation activities.

Other audiences cover a broad range of evaluators, learners and consumers of evaluation research, from institutional consortia and regional agencies charged with the comparative evaluation of two or more programs to undergraduates in research classes, for whom the book might well serve as a supplementary text.

Whether as students, teachers, administrators or evaluators, these audiences participate actively in nursing education and are probably familiar with curricular content. However, the book assumes no prior knowledge either in the field of nursing or in terms of evaluation research. There are no prerequisites for its use.

e. Important features of the book

1) It contains a detailed exposition of a successful and exportable methodology for program evaluation. Theoretically sound and pragmatically workable, the research design is presented complete with background,

rationale and references.

2) It is specifically tailored to address the current and future needs of nursing, a rapidly expanding field in which educational programs are in process of continual development and transition, and where professional accreditation activities necessitate frequent self-study and evaluation.

3) In addition to explicating the design and analysis, it illustrates and makes available to the reader a complete set of articulated instruments for carrying out the evaluation.

4) Both the language and the case study approach are planned to guide readers through the complexities of the research process but to avoid the intracacies of technical jargon and statistical minutiae.

5) Although it is possible to replicate the design in its entirety, the manual also considers the needs of readers who prefer to modify and adapt it to their own purposes, utilizing certain tools and strategies while omitting others.

2. Description of Illustrations and Aids

a. Approximate number and type of illustrations

Illustrations as such do not appear in the manual, although five whole pages and sections of 12 other pages contain reprints of sample research materials such as questionnaire items and format, codebook design, and computer programming. All such illustrative materials, however, are printed; no drawings or graphs are used with the exception of a scattergram on page 95.

b. Student aids in book

Explanatory notes appear at the end of most chapters; a complete list of bibliographic references is provided at the end of the book.

c. Supplementary student aids

None

3. Information About the Market

a. Primary market

Nursing Educators

Doctoral and Master's Students of Nursing, Health Care, Education, etc.

Project Directors of Training/Educational Programs

Baccalaureate Nursing Research Students

b. Secondary market

General reference for curriculum and program evaluators

c. Competition

1) Allen, Moyra. Evaluation of Educational Programmes in Nursing. Geneva, Switzerland: World Health Organization, 1977.

2) Green, J. L. and Stone, J. C. Curriculum Evaluation: Theory and Practice with a Case Study from Nursing Education. New York: Springer Publishing Co., 1977.

3) Steele, Shirley. Educational Evaluation in Nursing. Thorofare, NJ: C. B. Slack Co., 1978.

d. Advantages over Competition

1) The Allen book takes on the large task of defining how nursing education can be looked at and evaluated on a very broad scale (i.e., from country to country). It lays out what kind of information to consider in each segment of the evaluation, but does not suggest any specific treatment of the evidence. The book is not listed in Books in Print and may not be generally available.

2) The Green and Stone book is much longer, more "general" and less specifically addressed to the immediate needs of nursing educators/evaluators than our Manual. In a sense, it is geared to educating the

evaluator rather than providing specific tools and assistance.

3) The Steele book discusses one small (29 students) Master's program in Child Health Nursing. Although there is much reference to the evaluation literature (especially Stufflebeam, whose CIPP--Context, Input, Process, and Product--is supposedly used), the book as a whole employs an almost anecdotal approach, going into detail on some topics and skipping lightly over others. Its main purpose seems to have been to provide some data for internal use in monitoring and improving the new program.